

# AMERICAN BEE JOURNAL

AUGUST, 1921



AN APIARY ON WHEELS IN CARNIOLA

## AMERICAN BEE JOURNAL



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Send for shipping tags or mark your name and ours plainly on the barrels. We will render the old comb and pay you the market price for wax less 5c per pound for rendering.

### ITALIAN QUEEN BEES

Quantity	Price
1 untested	\$ 1.50
6 untested	8.50
12 untested	15.00

Quantity	Price
1 Tested pure	\$ 2.00
6 Tested pure	10.50
12 Tested pure	18.00

### SPECIAL HONEY EXTRACTORS

No. 5 Novice, 2 frame (A good little extractor)	\$25.00
No. 15 Cowan, 2 frame (A wonder for speed)	32.75

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- Q. What is the total cost of a fully drawn out wax comb?  
A. The minimum cost of drawing out a wax comb is 50 cents.

PRACTICAL BEEKEEPERS are buying ALUMINUM HONEYCOMBS because they

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|---|-----------------------------------|
| Cannot be destroyed by moths or rodents | Prevent loss by melting           |
| Make extracting of honey easy           | Increase production               |
| Control production of drones            | Last forever with reasonable care |
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Sole distributors for DUFFY-DIEHL, Inc., Pasadena, Cal.









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## Missouri Meeting

The Missouri Agricultural Society will hold a meeting August 26-27. August 26 at the home of Miss Emma L. Compton, East Kansas City, Mo. Maple Park is the station, on the Exelsior Springs interurban, from either Kansas City or Liberty. August 27 at J. F. Diemer's yard, Liberty, Mo. Messrs. E. R. Root, C. P. Dadant, Dr. L. Haseman and others, have been asked to speak, and Mr. Diemer will give a queen-rearing demonstration. All beekeepers invited.

## Lewis 4-Way Bee Escapes



Four exits from supers. Fits all standard boards. Springs of coppered steel. Made of substantial metal.

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Watertown, Wis., U. S. A.  
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Distributors.

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BEE SMOKER  
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Size of Shipping  
stove. weight.  
inches lbs.

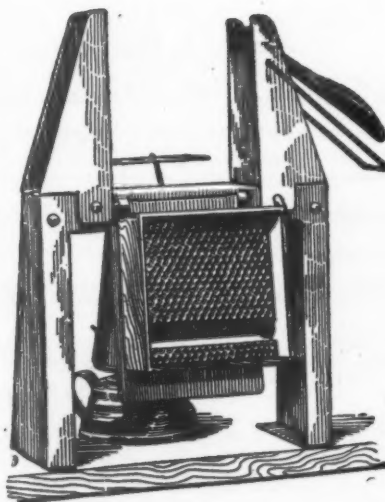
Big Smoke, with shield	4 x 10	3
Big Smoke, no shield	4 x 10	3
Smoke Engine	4 x 7	2 1/4
Doctor	3 1/4 x 7	2
Conqueror	3 x 7	1 1/4
Little Wonder	3 x 5 1/2	1 1/4

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Made of the finest quality steel for the purpose that money can buy. These knives of the proper thickness and quality have given the best of satisfaction, as the old-timers will testify. For over thirty years the men engaged in the manufacture of these knives have been at this work. The perfect grip cold handle is one of the improvements.

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One of our men with the section fixer puts up 500 sections with top starters in one hour and thirty minutes; 500 sections set up with top starters in ninety minutes. This includes the labor of cutting foundation, getting sections and supers and placing the sections into the supers and carrying them away. A complete job. This is nothing unusual, but his regular speed. You can do the same if you have the push, after you become accustomed to the work. There is no breakage of sections. It will pay you to secure one of these machines for this work. It is the best thing of the kind on the market.

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Get our latest reduced prices on all honey packages. Let us add you to our large list of pleased customers in this line of merchandise. Special prices on shipments from factories direct to customer. Sixty-pound cans in bulk and in cases. Friction top pails and cans all sizes. Clear flint glass. Mason jars pints and quarts; tumblers, pound jars and other sizes. Get on to our list, so as to get quotations.

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Untested .....\$1.35 each, 25 or more \$1.00 each  
 Select Untested .....\$1.50 each, 25 or more \$1.25 each  
 Tested .....\$2.25 each, 25 or more \$1.75 each  
 Select Tested .....\$2.75 each, 25 or more \$2.00 each  
 Breeders .....\$5.00 to \$15.00

1 pound pkg. bees, .....\$2.25 each; 25 or more, \$2.13 each  
 2 pound package bees .....\$3.75 each; 25 or more, \$3.56 each  
 3 pound pkg. bees, .....\$5.25 each; 25 or more, \$4.98 each  
 Add price of queen wanted when ordering bees. Safe arrival guaranteed within 6 days of here.

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**"SUPERIOR" FOUNDATION. Yes, we are ready for the rush**

Many tons now ready for shipment, and our machines are running to utmost capacity. Use the best. If your dealer can't supply you, write us for price, stating quantity required. We also accept beeswax for foundation or supplies.

**"Everything in Bee Supplies."**

**SUPERIOR HONEY CO., Ogden, Utah (Manufacturers of Weed Process Foundation)**

**Southern Headquarters****Reliable Three-Banded Italian Queens**

For several years our queens have been used and recommended by a number of the foremost beekeepers in the United States and Canada. We cannot afford to disappoint them, and we will not disappoint you.

Having several hundred colonies in outyards to select breeding stock from, and large, well-equipped queen-rearing yards, we are sure we offer you something good. We pay special attention to honey-gathering qualities, but do not forget gentleness, beauty, etc. Our queens are good to look at, and their bees a pleasure to work with.

Prices: Untested, \$1.25 each; six, \$7.50; twelve, \$13.50; fifty or more, \$1 each. Tested, \$2 each.

Prompt service, safe arrival of queens, and satisfaction, we guarantee. Any queens that prove to be misnamed will be replaced free of charge. No foulbrood or other contagious disease has ever been in our vicinity.

**W. D. ACHORD, Fitzpatrick, Alabama**

**WESTERN BEEKEEPERS!**

We handle the finest line of bee supplies. Send for our 68-page catalog. Our prices will interest you.

**The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.**

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Golden and three-band queens, untested \$1 each, or 6 for \$5; \$80 per 100. Virgin queens 50c each, or \$40 per 100. All orders will be filled promptly, or parties notified just when to look for them. Reasonable satisfaction to everybody.

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## RE-QUEEN

August is the month to requeen and prepare for winter as well as next year's honey crop. Desiring to secure our stock, many purchase a number of our guaranteed queens in August or September and from them select their breeder for the following season. As the prices of nearly all commodities are being reduced, we are accordingly reducing our prices of queens, this reduction to take place August 1st. We have sold breeding queens to many large honey producers and queen breeders throughout the United States, Canada and other parts of the world and all are much pleased with our stock. A notable example of these is J. E. Wing, of California, one of the largest queen breeders and shipper of pound packages in the world. He has purchased breeders from many sources in the past and writes:

"This season the Jay Smith strain has been secured and these are equal, if not superior to anything I ever had."



Hundreds who have purchased our guaranteed queens in the past, speak in highest terms of our stock. In the main, the reasons they give for preferring our stock are because they are gentle, they are of uniform yellow color, showing good breeding, because they are excellent for eradicating European foulbrood and for the fact that the queens are large, indicating a capacity for heavy egg production, which means strong colonies that get the big crops of honey.

Remember, I guarantee pure mating, safe arrival and general satisfaction. I send out but one grade of queens, and that the very best I am capable of producing. If any queen should ever prove other than a first-class queen, I shall consider it a favor if the purchaser report the matter to me that I may have the opportunity to replace her.

A card will bring our catalog.

### PRICE LIST AFTER AUGUST FIRST

1 to 4, inclusive, \$2 each; 5 to 9, inclusive, \$1.95 each; 10 or more, \$1.90 each. Our very best breeders, \$12 each.

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RT. 3

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To Save Two-Hundred and Thirty-One Dollars or

**30%**

Standard body, 10-frame, full sheets, wired	64 at \$291.20
Standard body, 10-frame, no foundation, not wired.	10 at \$24.50
Standard body, 10-frame, kd., 5 in box, 6 boxes	30 at \$51.45
Metal covers, with inner covers	50 at \$91.00
Reversible cypress bottom boards	50 at \$57.05
Wax foundation, full sheets, medium	75 lbs. at \$48.30

\$563.50 f. o. b. Buffalo.

\$563.50

**H. B. MILLER, Langs Farm, BUFFALO, N. Y.**



A SUPERIOR QUALITY  
AT LESS COST

# SUPPLIES

A SUPERIOR QUALITY  
AT LESS COST

All of the supply manufacturers have at last reduced their prices, but, as a beekeeper pointed out to us last month, the reduction in prices made by some manufacturers is not nearly as great as the reduction in prices of honey.

This is perfectly true.

Our sympathy in the campaign for low prices has been entirely with the beekeeper, and a comparison of the prices as listed below will show that we can save the beekeeper money on supplies.

These supplies are made by the Diamond Match Company and are of a superior quality.

Hives, Supers, etc., listed below are in the flat, and are complete with Hoffman Frames, nails, metal rabbets and all inside fixtures

## ONE-STORY DOVETAILED HIVE

Five 8-frame ----- \$13.50  
Five 10-frame ----- 14.30

## FULL-DEPTH SUPERS

Five 8-frame ----- \$6.70  
Five 10-frame ----- 7.60

## SHALLOW EXTRACTING SUPERS

Five 8-frame ----- \$5.00  
Five 10-frame ----- 5.50

## NO. 1 STYLE COMB HONEY SUPERS

Five 8-frame ----- \$4.80  
Five 10-frame ----- 5.25

## STANDARD HOFFMAN FRAMES

100 ----- \$7.20  
500 ----- 33.00

## OUR INCOMPARABLE QUALITY FOUNDATION

Medium Brood		Thin Super		Light Brood	
5 lbs. -----	74c per lb.	5 lbs. -----	80c per lb.	5-lb. lots -----	76c per lb.
25 lbs. -----	73c per lb.	25 lbs. -----	79c per lb.	25-lb. lots -----	75c per lb.
50 lbs. -----	72c per lb.	50 lbs. -----	78c per lb.	50-lb. lots -----	74c per lb.

Aluminum Honey Combs as now made by Duffy-Diehl Co. are meeting with success wherever used. We carry these in stock to supply eastern beekeepers.

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# PERFECT SECTIONS OF HONEY

are not entirely the result of perfect lumber, but depend also on the bees, the honey flow, the care of the beekeeper and the foundation used.

**Dadant's Foundation** will aid in securing such perfect sections because it has all the qualities necessary for the most practical use, and for the most fastidious section honey producer.

Have you made the highest percentage of number one sections from your season's work? **Dadant's Foundation** has helped many a beekeeper add to his average.

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EVERY INCH, EVERY POUND, EVERY TON EQUAL TO  
ANY SAMPLE WE HAVE EVER SENT OUT.

*Specify it to your dealer. If he hasn't it write us*

**DADANT & SONS, HAMILTON, ILLINOIS**

*Catalog and Prices on Bee Supplies, Beeswax, Wax Working into Comb Foundation  
and Comb Rendering for the asking*

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Did you get our post card announcing lower prices?  
It was mailed to you early in the month of June.  
32% reduction on famous No. 1 Lewis section boxes.  
30% reduction on all hives, bodies, supers, covers.  
Many other low prices on items you need now.  
These apply to No. 1 grade of goods only.  
Also ask for bargain list on "Odd Lot" goods.

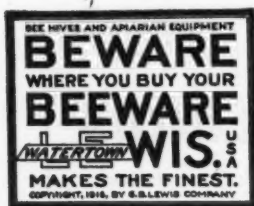
## ITALIAN QUEEN BEES

August is the season for requeening in most parts of the U. S. A., just at the end of the honey flows. Arrangements have been made with one of the best Southern queen bee breeders to furnish 3-banded Italians to enable beekeepers to introduce better stock. Prompt shipment, safe arrival and satisfaction guaranteed in U. S. A.

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Price \$2.25 each, tested

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VOL. LXI—NO. 8

HAMILTON, ILL., AUGUST, 1921

MONTHLY, \$1.50 A YEAR

## BEEKEEPING IN MARYLAND ✓

An Outline of the General Conditions and of the Nectar Resources of an Eastern State—By G. H. Cale

**T**HE topography of Maryland is such that in traveling from Oakland in the Allegany Mountains to Ocean City, on the Eastern shore, a distance of over 300 miles, a range of altitude is encountered from over 3,000 feet to sea level. According to altitude, the State may be divided into three distinct regions, (a) the Coastal plain, (b) the Midland region or Piedmont, (c) the Mountain region.

The Coastal plain is separated into the Eastern and Western shores by the Chesapeake Bay and takes in the area east of an arc extending from Washington, D. C., to Elkton. Much of the Eastern Shore is included in two low terraces, with an average elevation of 80 feet above sea level. In places along the coast, however, especially in the south and about the bay, are many thousands of acres where the soil is saturated, giving rise to extensive marshes often  $2\frac{1}{2}$  miles in width and frequently so salt that only a few plants can live in them. The total swamp area, as given by Shreve, Chrysler, Blodgett and Besley, in Vol. 3 of the Maryland Weather Service "Plant Life in Maryland," is 276,736 acres, of which 128,960 acres are in Dorchester County. In the uplands there are also numerous swamps where cedar and cypress abound. Through all the Eastern Shore are great numbers of sluggishly flowing streams of all sizes, often of an amber hue from the evergreen swamps. The mouths of the permanent streams extend as broad estuaries.

The Western Shore has a greater elevation, rising to a maximum of 290 feet. The surface is level, but sharply cut by streams, especially in the southern part of the Chesapeake-Potomac peninsula, and at the mouths of the rivers there is frequently a sharp rise from tide level to 100 feet

or more. Marsh areas are restricted to the bay shore in Harford County.

The Midland region extends from the "fall line" at the west limits of the Coastal plain to the eastern part of Allegany County. The eastern half is at a level of 480 to 850 feet, with a fairly uniform surface dissected by streams, but the western part is at a much higher elevation, containing low mountain ranges with fertile valleys between. The most important of the valleys, those in which Middletown and Hagerstown are situated, are separated by the Blue Ridge Mountains, which rise as high as 2,000 feet. At the western

edge of the Midland is a series of narrow valleys and steep ridges terminating in Allegany County at a 1,500 foot elevation.

The mountain region is entirely above 1,500 feet and contains the Big Savage and Great Backbone ridges, rising to 3,200 feet. The highest elevation is 3,342 feet, near Table Rock, in Garrett County. The valleys and bottom lands bordering the streams are often very fertile, and along the upper waters of some of the streams are frequent swamps.

Because of this great diversity in topography there is a wide variation in the flora throughout the state and



Peach orchard in the Upper Midland.

also a great difference in the soils and in the agriculture adapted to them. The climate obviously has a wide range and consequently a great effect upon the growing season and upon the distribution of plants. Some understanding of these differences is necessary in studying the nectar resources of the State.

The rainfall is uniform and well suited to plant development, and some 1,800 to 1,900 species are to be found, a great number with a wide distribution through eastern North America. The chief vegetation is forest trees, and woodlands occupy about one-third the area of the State, with the smallest percentage in the center. The effect of the differences in altitude, climate and soil is strikingly shown in the type of flora to be found in the eastern and western parts of the State. In the mountain regions, species occur whose chief range is northern United States, while in the eastern part much of the vegetation is related to that found in the tidewater Carolinas and Virginia.

#### The Climate

Weather records show a difference of 82 days in the last occurrence of frost between Garrett County in the west and Worcester County in the east. Also at Sunnyside, Garrett County, the average date for the last occurrence of 40 degrees comes 50 days after the last occurrence of 32 degrees. At Pocomoke, Worcester County, the interval is only 9 days. At the latter place, therefore, spring comes quickly with warm nights, while at Sunnyside it comes slowly, with many cool nights. The usual difference for the occurrence of spring in the two places is about 5 weeks. At Baltimore, due to the tempering influence of Chesapeake Bay, spring comes 12 days earlier than at Pocomoke, although the latter is much further east and south.

In the mountain region the winters are quite cold and even, but in the east great variations occur, especially in the lower Midland and shore regions. The records of the Weather Bureau station at Great Falls show a range of temperature in December from 68 degrees to 0 degrees, and in May from 96 degrees to 28 degrees.

The soil survey of Montgomery County, by Carter and Hull, gives a mean temperature of 53.8 degrees for the Piedmont, with the last killing frost on May 12, and the first killing frost in fall on October 3.

#### The Eastern Shore

Sandy loams and sands predominate in the northern and southeastern counties, and clay soils are extensive in the counties along the Bay. Forests occupy about one-fourth the area, being most extensive in the south, where coniferous trees abound. Some of the purest stands of loblolly pine in the United States occur here. In the northern part deciduous trees predominate and in parts of Cecil County chestnut and chestnut oak form a large part of the forest area.

The lighter soils are well adapted to truck crops, and great quantities of vegetables are raised and shipped to northern markets. In the south considerable land is devoted to tomatoes and melons. Fifty per cent of the tomatoes grown in the United States for canning purposes are grown in Maryland, most of them in this region. Smaller truck crops are raised nearer Baltimore, strawberries and sweet potatoes being noticeable among them. On the deeper loams of the central counties corn and wheat are important. The peach crop from the eastern shore is of considerable importance, and the orchard industry is rapidly growing in the lower counties.

#### The Western Shore

On the Western Shore there is much sandy loam of good quality. Here it is that the early settlers became so well established, especially in the region known as Southern Maryland. Prior to 1865 much of this region was highly cultivated, tobacco being the chief crop because of its quick cash value. As fast as one piece of land ran out, another clearing was made and new land sowed, a practice which resulted in soil depletion, and for 40 years the region has been neglected by man. In St. Mary's and Charles Counties alone fully one-half of the land is uncultivated. Forty-two per cent of the area is in forests. Tobacco is still grown extensively and in some sections wheat and corn are

important. There is no record in Maryland, however, of nectar in any amount being obtained from tobacco, since in the cultural system used the plants are cut before they bloom. In Anne Arundel County strawberries are an important crop, the most of them being sold in the Baltimore market. The sandy river necks south of Baltimore produce quantities of melons, peas, beans, strawberries and small fruits.

#### The Lower Midland

The chief soils here are loams and clays, and in nearly every county is a narrow strip of peculiar formation known as the Serpentine Barrens, containing no lime or potash, but rich in magnesium compounds. The resulting flora is different from any other in the State, but fortunately this soil is quite limited. About one-fourth the area is forested, but mostly as small tracts scattered through a highly cultivated farming country. The largest acreage of improved land in the State is found in this section. Corn and wheat are the big crops, and in Harford and Cecil Counties considerable sweet corn, tomatoes and other vegetables are raised for canning purposes. Hay is important in Baltimore, Carroll, Montgomery and Harford Counties and considerable alsike clover is used in the seed mixtures. Dairying is also important in these counties, and white clover is abundant.

#### The Upper Midland

In the Middletown and Hagerstown Valleys clay loams predominate, overlying Shenandoah limestone. These soils are excellent and clover thrives wherever the lime is sufficiently available. Sandy loams and sands are more abundant in the west. Here the forested area is the least in the State, amounting to only one-fifth of the acreage, most of which is in Allegany County. In this county 50 per cent of the land is in forests. At one time the Middletown Valley north of Frederick was the richest agricultural section in the United States. Corn and wheat are the big crops. The higher lands to the west, especially around Hancock, are devoted to extensive apple orchards, one orchard alone embracing 600 acres. Some quince orchards are also found, and at the northern end of the Blue Ridge peaches have long been a noted product. About Hagerstown considerable acreage is used to grow crops for canning purposes.

#### The Mountain Region

In the mountains the shales and sandstones have worn down into sandy loams and sands. The forests are extensive and occupy fully two-thirds of the entire area. The agriculture is, of course, limited, and the most extensive industry is mining. Sheep are grazed in numbers, and seed potatoes are becoming an important crop. In the cool nights and warm days buckwheat does well and is raised to quite an extent.

#### Distribution of Two Principal Honey Plants

A discussion of Maryland's chief honey plants, clover (*Trifolium repens* and *T. Hybridum*), and tulip-



The natural divisions of Maryland.



poplar (*Liriodendron tulipifera*), will serve to show the influence these factors have on the nectar resources of the State. White and alsike clovers occur in considerable quantities and tulip-poplar forms a generous percentage of the forest areas. By nature, however, the clover and tulip are opposites. Clover, a resident of the North, is found in cultivated or open lands, while tulip-poplar, a relative of tropical plants, is confined to the forests. Therefore, to state that clover and tulip are common throughout the State is misleading.

#### Clover

Since clover is confined to lands not under constant cultivation, its abundance will be determined largely by the character of the agriculture. In the Midland, where dairying is an industry or hay is raised in large amounts, alsike and white clover are extensively found. On the Eastern Shore, wherever clover will grow, it does well, but here again the agriculture limits its abundance, and in some soils it is impossible to secure a stand of it. In the mountain region clover is not found to any extent.

Clover is not at its optimum except where lime is abundant and its fame as a honey plant comes from glaciated regions where the soil is rich in lime. None of the soils of Maryland are of glacial origin, and the lack of native lime is shown by the vegetation. Chestnut and chestnut oak are commonly found and neither of these are tolerant of lime. There is more lime in the Midland region than elsewhere.

Temperature also has a decided bearing on the nectar secretion from clover, and where clover thrives best in the State the temperature is not long favorable. It has been shown by Hawkins that, in Wisconsin, on glaciated soils rich in lime, the nectar yield from clover ends when the daily mean temperature reaches 74 degrees, although clover continues to bloom thereafter. The following shows the mean daily temperature for a ten-year period in Maryland during the blooming period of clover

#### June

Garrett County	64 degrees
Allegany County	70 degrees
Frederick County	71 degrees
Baltimore County	72 degrees

#### July

Garrett County	68 degrees
Allegany County	74 degrees
Frederick County	77 degrees
Baltimore County	77 degrees

#### Daily Range—June

Garrett County	25 degrees
Allegany County	29 degrees
Frederick County	22 degrees
Baltimore County	17 degrees

#### July

Garrett County	24 degrees
Allegany County	30 degrees
Frederick County	21 degrees
Baltimore County	11 degrees

Judging from this, the best results would be expected in Garrett and Alleghany Counties, but clover is not found here in any quantity. It is most abundant in the Midland, and when the temperature and rainfall are just right good crops are ob-

tained. This happens about once in three years. If the bees are at the proper strength a little clover honey may be secured every year.

#### Tulip-Poplar

The tulip-poplar, or tulip tree, is a more certain yielder of nectar, blossoming during May, just before the clover flow begins. The honey from it is a dark amber. When both clover and tulip are present in quantity in the same locality the latter will insure a crop where the clover fails. Such situations are not common, however, and require careful seeking. The tulip is not only a forest denizen but it has a decided choice as to the soil in which it sets its roots, and it is limited, also, in its abundance by the severity of the climate. In volume 111 of the Maryland Weather Service, where much of this information may be found in detail, the distribution of the tulip tree is given as general from the swampy lands of the east to the mountain slopes of the west. However, it is not found directly in the swamps of the Eastern Shore, although its presence often indicates a soil too moist for agriculture. It is most abundant on the dry flood plains of the higher lands.

On the Western Shore it is not found in the lowland forests, but is plentiful in upland depressions and on slopes where the moisture in the soil is normal. On the soil covered hillsides of the lower Midland it is one of the predominant species, often forming 80 per cent of the forest. Some tulip is found in the flood plains associated with maple, oak, gum and elm. It is also abundant on top lands where Cecil clay prevails and in Harford County, except on the uncultivated gravel areas, three to five per cent of all the trees are tulip. The peculiar serpentine barrens prohibit its growth. It so happens, however, that the soil best suited to it is also good wheat soil, and consequently wheat is extensively raised in this section, thus limiting the abundance of the forest area.

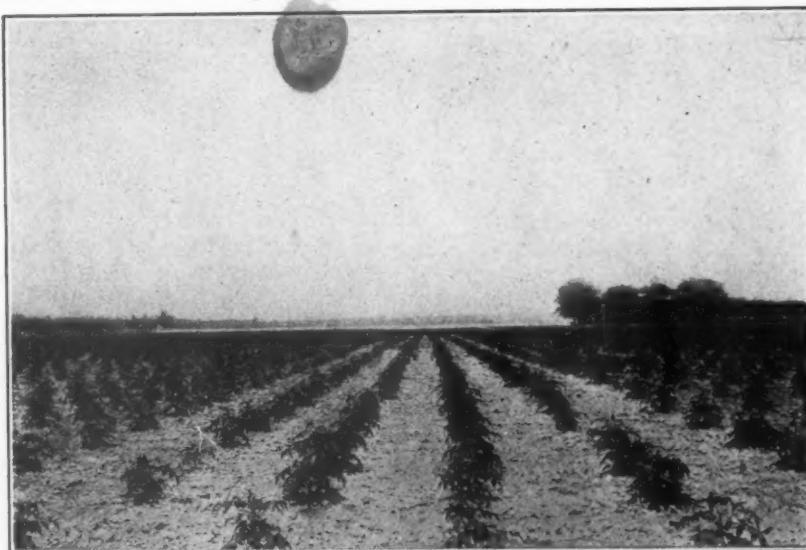
In the upper midland region it is found only on the lower slopes and

further west it is confined to the valleys, where it often forms 20 per cent of the forest. In the upper Monocacy Valley and in the region north of Westminster, tulip is scarce. It is not abundant in the Blue Ridge, although found in the valleys near North Mountain. In the mountain region it is rare or absent, either on the slopes or in the valleys. Where it is best adapted, therefore, tulip-poplar is limited by the well developed agriculture. On the other hand, in Garrett County, where 64 per cent of the land is still in forest, it occurs rarely.

Although this is perhaps a discouraging picture, there is the saving fact that the tulip is a prolific yielder of nectar and when it is in bloom the large, showy, cup-like blossoms drip with sweetness. The liquid is rich and thick, with all the characteristic taste of the ripened honey, although in a less degree. A few trees give a large quantity, therefore, and there are good locations in the Midland for sizable apiaries. I have never seen bees act so wild over nectar as they do when the tulip begins to yield. It is a verity that they "go crazy." A most peculiar thing about their behavior, however, is that if clover or locust begin to yield abundantly at any time when the tulip is in bloom, they gradually desert the latter and work entirely on the former, leaving the big tulip blossoms dripping with unrecovered sweetness.

#### The Extent of Beekeeping

The early history of beekeeping in Maryland is brightened by the names of some men of considerable note. Langstroth was a resident of Baltimore for several years, and Samuel Wagner published the American Bee Journal in the adjoining District of Columbia, at Washington. Mr. Wagner and Mr. Richard Colvin, of Baltimore, were the first to import Italian bees to this country from Europe, in 1859. Mr. Samuel Cushman, one of the first teachers of beekeeping in an agricultural college in the United States, has long been a resident of Baltimore, and an active worker for



A tomato field on the Eastern Shore.



the beekeeping interests of the State. He formerly taught beekeeping at the Rhode Island State College.

In a bulletin, "Beekeeping in Maryland," by Symons and McCray, issued by the Maryland Agricultural College Experiment Station, in 1911, it is estimated that there are 5,000 beekeepers in the State, reporting a total of 28,000 colonies, a little better than five colonies to each apiary. Probably these figures have not greatly increased since that time. There are some apiaries of 100 to 200 colonies and quite a few of 50 or more. Eighty per cent of the bees are in the West Shore and Midland regions and over 74 per cent of the bees are in modern equipment, but in instances the box hive still persists, especially on the Eastern Shore and in the mountain regions, where beekeeping is of less importance.

Some of the largest apiaries are found near the cities of Washington, Baltimore, Frederick, Hagerstown and Cumberland, probably because these are good markets for honey. There is a good State Beekeepers' Association under the leadership of the State Entomologist, E. N. Cory. A tendency exists to cling to the production of comb honey, although conditions over the State as a whole are such that a good grade of comb honey cannot be secured. Where clover is in dependable amounts, however, comb-honey production is profitable.

The average yield of honey per colony is about 30 pounds, a low yield, due to the fact that the honey flow comes extremely early, before the colonies are sufficiently strong to take advantage of it. When colonies are wintered as they should be, brood-rearing usually starts in March. Maples bloom in April, followed by fruit and other early sources of nectar and pollen. Tulip-poplar comes in early May and is succeeded by clover in June. In July and August there is a long dearth, often with honeydew in unwelcome abundance, followed by a flow from the usual fall flowers.

This gives sufficient surplus for winter but not for spring brood-rearing, and about once in four or five years an unusually cold winter, with few flight days, causes a consequent heavy loss of bees. The season following such a winter is often a good one for honey production and naturally, under these conditions, only the careful beekeeper gets a crop.

One hundred pounds per colony is not unusual when the bees are in the right condition.

#### The Nectar Sources

Maples—*Acer saccharum*, sugar maple, April. Important in the upper Midland.

*Acer rubrum*, red maple, April. General.

*Acer saccharinum*, soft maple, April.

All important in early brood-rearing.

The writer has also seen nectar in the supers in considerable amounts in the vicinity of Washington from plantings of Norway maple, *Acer platanoides*.

Tulip-poplar—*Liriodendron tulipifera*, May 10-June 1. General, but most abundant in the Midland region. Least abundant in the mountain region. One of the most plentiful sources of surplus.

Black Locust—*Robinium Pseudacacia*. Late May-early June. Eastern Shore, Carroll and Montgomery Counties, Hagerstown Valley and Cumberland hills, only on slopes in mountain region. This is an uncertain source, but when it does yield the flow is abundant. In 1920 the bloom was unusually heavy and large amounts of honey were obtained from locust. The honey is white and of fine flavor.

White clover—*Trifolium repens*. June. General except in forest region. Depends on weather conditions but gives a fair crop one year in three.

Alsike clover—*Trifolium hybridum*. June. Coming into use generally in farm practices and also does well

where white clover is not of much importance.

Basswood or Linden—*Tilia americana*. May-June. Midland, Blue Ridge, North Mountains and Tonoloway Ridge. About Roundtop, southwest of Hancock, linden is often 15 to 20 per cent of the stand. It is often common in the mountain zone, but is scarce on the ridges.

Sumac—*Rhus* sp. July-August. In restricted locations in the West Shore, Midland and Mountain regions.

Chestnut—*Castanea dentata*. August. Abundant, especially on the hills and in the mountain region. This is a questionable source of nectar, but many beekeepers claim to secure a yield from it.

Sweet clover — *Melilotus alba*. From July on. Important on Eastern Shore and around the bay. Some sweet clover is also found in the Midland.

Blue thistle, or Viper's bugloss—*Echium vulgare*. July. Most important on fallow valley soils in upper Midland.

Buckwheat—*Fagopyrum Esculentum*. August-September. In extreme west only. Does well on soils suited to red spruce, and the latter is most abundant in Garrett County.

Goldenrod—*Solidago* sp. August-September. General.

Aster—*Aster* sp. September-October. General.

Joe-pye weed or boneset—*Eupatorium purpureum*. Lowlands, both shores and Midland.

Sweet pepper bush—*Clethra alnifolia*. East shore along coast.

Professor E. N. Cory, of the University of Maryland, is well acquainted with the nectar resources of the State, and he makes the following additions to the honey plants:

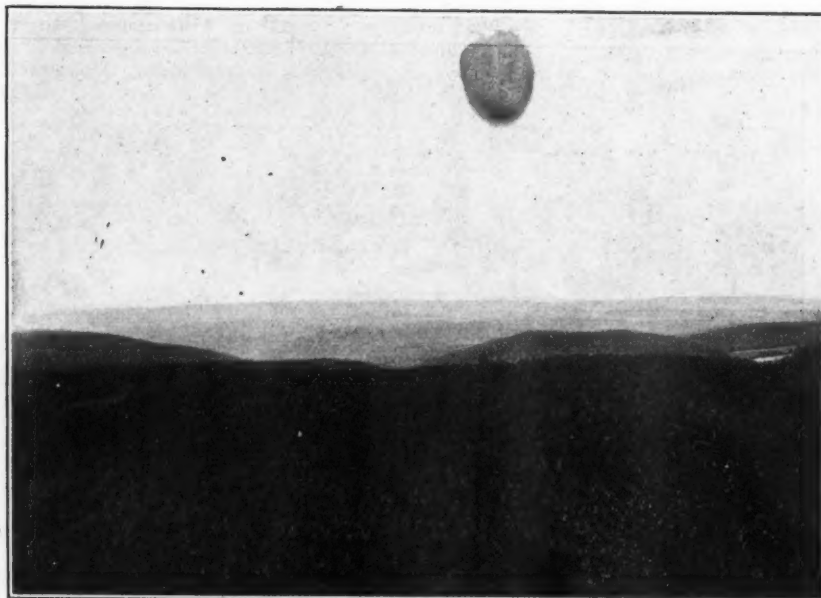
Common chickweed—*Alsiue media*; winter cress—*Barbarea stricta*; dandelion—*Taraxicum Taraxicum*; crimson clover—*Trifolium incarnatum*; wild black raspberry—*Rubus occidentalis*; black gum—*Nyssa sylvatica*; hairy vetch—*Vicia villosa*; staghorn sumac—*Rhus hirta*; purple milkweed—*Asclepias purpurascens*; mountain mint—*Koellia virginiana*; mountain sumac—*Rhus copalina*; narrow-leaved mountain mint—*Koellia flexuosa*; muskmelon—*Cucumis melo*.

#### HOME-MADE ELECTRIC IMBEDDING DEVICE

By Ransom A. Race

Electricity has supplanted the older methods of imbedding the wires in the foundation, but even with the use of electricity, we have had our troubles, and any simple way of giving a flexible use of the current has not come to my notice in any of the journals.

I have tried flatirons, toasters, light dimmers and various lengths of iron wire put into the circuit as resistance. They do the work very well as long as we have one length and size of wire to set. If we want to set two wires in a shallow frame or four wires in a Langstroth frame or six wires in a Jumbo frame or an oblique wire in any frame, a great deal of fussing and figuring are necessary in order



A mountain view in Western Maryland.

to get the correct amount of "resistance" in the circuit to meet the varying conditions. Perhaps if you use No. 26 wire, as I do, some friend may bring in 10 or 20 frames wired with No. 30 wire and ask you to set them. Then your resistance is again all upset, because the electrical capacity of the No. 26 wire is about six times as great as the No. 30 wire of the same length.

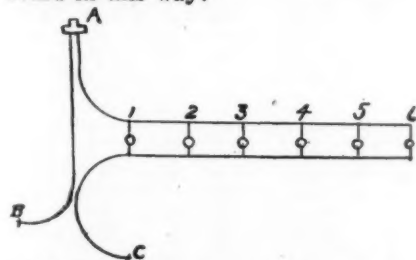
Small "transformers" are a great improvement over flatirons, etc., but a transformer that will give a delicate control of the current to meet the above conditions would cost a "pretty penny," so only a few would benefit by it.

Electricity is usually delivered to the consumer as a current of 110 volts, 30 or 60 amperes and 60 cycle, alternating; some have a constant current; it makes no difference in the application of my method what kind of strength of current you have, as long as you have it.

All methods of controlling the current I have seen, try to do so by reducing the voltage, seemingly forgetting that a current is made up of other components besides its "force." All currents have also "volume," or amperage. Now, within certain limits, and we are well within those limits, with the currents and wires we are discussing, a small wire will "accept" a current of small voltage and large amperage, or one of large voltage and small amperage, without heating, but not a current of large voltage and large amperage.

Instead of trying to vary the voltage in our small wire let us turn to the amperes and let the volts alone. A piece of No. 30 wire 18 inches long will carry a current of 110 volts and one-half ampere without heating, but a current of 110 volts and 1 ampere will heat it considerably. So let us see if we can in any way apply this principle to our use.

Take 6 open work porcelain receptacles and 5 32 candle power carbon lamps and 1 16 candle power carbon lamp and construct a controlling board in this way:



Resistance circuit for electrical imbedding.

A, plug to electric light socket; wires are the flexible lamp cord unwound.

1, 2, 3, 4, 5 are the 32 candle power lamps.

6 is the 16 candle power lamp.

B and C are the two points used to touch wires in the frames to be heated.

Each 32 candle power lamp that is screwed down tight will draw 1 ampere of current, and the 16 candle power lamp will draw one-half ampere.

To heat one length of wire across the frame it takes about  $1\frac{1}{2}$  amperes, to heat all 4 wires at once takes about 5 amperes. If you want to heat one wire only, screw down No. 1 and No. 6 lamps; then a current of 110 volts and  $1\frac{1}{2}$  amperes is delivered at points B and C. If you wish to heat 2 wires it takes about 3 amperes. Screw down lamps 1, 2, and 3, leaving the others loose, and you have a current of 110 volts and 3 amperes at the points B and C. You see, you can get a current varying from  $1\frac{1}{2}$  to 5  $\frac{1}{2}$  amperes with this board. If one-half is not small enough a unit, put in an 8 candle power lamp which only draws one-fourth ampere. If 5  $\frac{1}{2}$  amperes is not enough, add more lights in the same way, and as many as you wish.

I mention the carbon lamps because they are not easily broken and because they happen to draw 1,  $\frac{1}{2}$  and  $\frac{1}{4}$  amperes. While tungsten lamps can be used just as well, the amperage drawn does not fit itself so well for this usage; if you use tungsten lamps use all of one size except the last one, and that should be as nearly as you can get it, only one-half as strong.

The points used to touch the wires are pieces of No. 14 insulated copper wire. Scrape off about 1 inch of the insulation at each end, flatten the tip of one end in a vise and file square on end of flexible cords B and C to other ends and cover with tape. Simple, but very effective.

Have you foundation to cut? All right, wind the ends of a short piece of No. 26 or No. 24 copper wire around points B and C, turn on the current and draw wire across foundation where you wish cut to be made.

Massachusetts.

## THE FOULBROOD SITUATION IN BRITISH COLUMBIA

By W. J. Sheppard

With the exception of the coast region, known as the Lower Mainland, or the Fraser Valley, the whole of British Columbia is practically free from bee diseases.

"The Fraser River, 750 miles long, has its source in the Yellowhead Pass, close to the foot of Mount Robson. After emerging from the mountains, first northwesterly, and thence almost due south to within a few miles of the International boundary, it turns westward through a wide valley intersecting the coast mountains. It reaches the sea amidst an extensive fertile delta of its own making. The prevalence of moisture-laden winds from off the Pacific ocean, during the winter months, causes heavy rains. During the summer months the ever-changing tidal waters tend to keep the day temperature moderate while the nights are usually cool."

In the Fraser Valley, where European foulbrood is much in evidence, it may be considered as endemic. The moist climatic and other conditions that prevail, are peculiarly favorable to its growth and propagation, so that

it exists in a severe and virulent form. It has been present here for a long time and consequently obtained a firm hold. This was not realized until a special inspection was made, under the direction of the Department of Agriculture, in 1918, in a portion of this area. The disease is very bad in the adjoining territory in the State of Washington. As bees cannot be prevented from flying across the international boundary line, it is obvious that there is always the certainty of re-infection from this source, after a clean up, unless the same remedial measures could be followed on both sides, this being one of the difficulties beyond their control, that the inspectors have to face.

Mr. J. E. Crane, in the February number of "Gleanings," is quite correct when he says that "European foulbrood is much more virulent on some soils and in some locations than others. In some sections it will disappear of itself, while in others it is almost impossible to eradicate it."

As the Fraser Valley has been declared an infected area, by the Minister of Agriculture, under the provisions of the Apiaries Act of 1919, wherein the moving of bees is prohibited without a certificate of inspection, the disease should be prevented from spreading beyond these limits, especially as the mountain ranges form such an effective natural barrier of protection to the interior. The beekeepers themselves can do a good deal to assist in this by being loyal and patriotic enough to respect this necessary regulation, and not try and evade it.

When the special inspection was made in 1918 it was found that beekeeping was mostly carried on in a perfunctory and primitive manner. Comparatively few were experienced and understood the art of keeping bees profitably. Most of the hives used were single-walled, without any additional protection, which is really necessary in this cool climate, of various patterns and sizes, and there were a great many box hives. Many of the beekeepers are farmers who, as a rule, have not much time to devote to this branch of agriculture; consequently the bees were very often the last to receive attention. It was found, also, that nearly all the colonies consisted of black bees, which are usually looked upon as being the most susceptible to disease.

During the last two years since the inspectors have been working in this territory (three in 1919, and four in 1920), there has been a marked improvement. The box hives have been done away with, improved and up-to-date hives and appliances have been introduced and brought into use, and many hundreds of colonies have been requeened with good Italian queens. The inspectors have taken a keen and personal interest in their work, and there can be no better method of imparting information and instruction than by personal visits to the beekeepers made possible by the present system of inspection.



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## THE EDITORS' VIEWPOINTS

### Cost Accounting

We call the attention of our readers to the article by Mr. Elmer T. Beach in this Journal on "Cost Accounting in Beekeeping."

Mr. Beach has had many years' experience in accounting and is now quite a successful beekeeper. He gives an outline of just what should be considered in getting at the actual cost of producing honey.

This subject has been much too long neglected by the beekeepers, who are just now realizing that in many instances honey is being produced at a loss and that they had best discontinue their beekeeping and go into some more remunerative line unless they can reduce cost or in some other way offset the high production cost.

We will be glad to have suggestions from our readers for further articles along this line, as we feel sure Mr. Beach is competent to handle this subject, both from the beekeeping standpoint and from that of the expert accountant.

### Requeening

In our Question and Answer Department, the query is made of Dr. Miller's method of requeening. We believe that his ideas upon this subject are summed up in his answer to this question in the "Thousand Answers to Beekeeping Questions," page 201: "No need to requeen if the queens are good."

### The C. C. Miller Fund

The Memorial Fund inaugurated in honor of our departed friend and educator has not turned out as large as anticipated. We give in another column the list of subscriptions. To this will be added that secured by Gleanings, which will be published in that magazine. There is also a list being circulated in England by the Bee World. At last accounts this amounted to something over 16 pounds. Another list is made up in South Africa. Dr. Miller was an international authority, even in foreign language countries, but he was best appreciated in English-speaking regions.

A number of subscriptions will be supplied by the larger beekeepers, when the list is closed. The majority of the committee in charge are of the opinion that much more may be

and should be secured. So the list will be kept before the public until enough is secured to make a respectable showing. We ask our readers to refer to the letter received from Dr. E. F. Phillips, of Washington, published on page 323 of this issue. We agree fully with him. Dr. Miller was too big a man for the beekeepers of America to be satisfied with the modest sum obtained thus far.

### Hot Weather Ventilation

The careful beekeeper has looked after the ventilation needs of his colonies during the hot weather. When it begins to cool off it is just as necessary for him to see that the colonies do not have too much of it. "Stag-gering" the supers, which may have proven beneficial, will soon be obnoxious, and the bees will show their opinion of it by trying to close the extra openings with propolis. Do not wait till the weather becomes very cool to reduce the amount of upper ventilation, or close it up altogether. A large amount of bottom-board ventilation may be left till very late in the season if the colonies are powerful. But upper ventilation is to be done away with long before frost.

### An Italian Edition

A new edition of the extensive work of De Rauschenfels, "L'Ape" (The Bee), published in Milan, Italy, by U. Hoeppli, is on our desk. This work, revised by Vincenzo Asprea, the well-known associate editor of L'Apicoltura Italiana, is a large book of 408 pages, of the same size as Root's A B C, and contains most of the modern methods. It gives 17 portraits of leading beekeepers throughout the world. A former edition was published in 1901, with the well-known microscopic studies of Count Barbo. The latter are now entirely out of print.

### Still Another Sweet Clover Bulletin

"Sweet Clover in Arizona," is the title of an 8-page bulletin gotten out by the College of Agriculture of Arizona and written by S. P. Clark, Assistant Agronomist.

Mr. Clark describes the four varieties of sweet clover and gives the soils required, the growing and hand-

ling and the place of sweet clover in soil rotation.

The principal value of sweet clover to Arizona agriculture is its adaptability to such a wide range of soils. It will grow on soils too alkaline for alfalfa, and is also adapted to many other soils which may be fitted in this manner for later planting of alfalfa.

Mr. Clark advises the planting of sweet clover seed in October or November, especially when the unscarified seed is used.

Anyone interested in the booklet should write to the University of Arizona at Tucson for Circular No. 34.

## DR. MILLER MEMORIAL FUND

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### Michigan Meeting

The beekeepers of Michigan will hold their summer meeting at Alpena, August 3 and 4. The Michigan meetings are always well attended and we are told that this is expected to be one of the best ever held.

### Mississippi Summer Meet

The meeting, which was held June 15, at the home of W. W. Worthington, at Wayside, Mississippi, had an attendance of about 100, and they report a splendid time. W. E. Elam, of Greenville, presided at the meeting.

### A Universal Bibliography of Beekeeping

We are in receipt from Italy of ten copies of De Keller's "Elenchus Librorum de Apium Cultura," a book of 224 pages, published in 1881 and which is said to be the most complete list of bee books in existence. It mentions some 2,000 books or essays on bees, published in the different countries, at different dates, giving author's name, title, size, date, etc., in its own language. We will supply them as long as they last at \$1.25 per copy. These are invaluable for college libraries.

### Georgia Beekeepers' Meeting

A short course in beekeeping is to be held in the Chamber of Commerce Auditorium in Macon, Georgia, August 16, 17 and 18. The program is good. The State Entomologist is to be present. A banquet will end the day. For information address L. C. Walker, of Waycross, or Mrs. Madge B. Merritt, Secretary, Brunswick, Georgia.

### Young Queens Lay Few Drone Eggs

Huber, who had no knowledge of parthenogenesis and who wondered how the queen could know when she was about to lay drone eggs, would have been highly pleased, had he been informed of the rule of parthenogenesis which shows that it is only the egg that is not fertilized as it passes by the spermatheca, in her abdomen, which becomes a drone. But he was a very keen observer and had already noticed (New Observations, 10th Letter) that a young queen rarely lays any drone eggs, if fertilized, until she is at least 11 months old. So we know that it is not difficult to prevent a young, healthy queen from laying a too great number of drone eggs, especially if we see to it that but little drone comb is left in her reach. That is another argument in favor of replacing our queens regularly. Mr. Charles Dadant held that the queen finds a certain pleasure in the fertilization of worker eggs as they pass the spermatheca, and that she did not care to lay drone eggs till she became fatigued of this repeated action.

### Adult Bee Diseases

Our friends of the "Bee World," in their June number, suggest that the Nosema disease of the adult bee "exists but in a mild form in America, thanks to the high standard of American bees, evolved no doubt through

selective breeding forced by keen competition." We accept the compliment, but would also suggest that the diseases of the adult bee appear to be intensified by damp weather. The "May disease" or "paralysis," whether or not it is caused by the newly discovered "Tarsonemus woodi," or stimulated by the Nosema, is undoubtedly a disease which thrives in damp weather. Wherever we have heard of the May disease, whether in Italy, France, Florida, California, or here in Illinois, it has been during and following a period of damp weather. We conclude, therefore, that our dry climate is much less favorable to it than the climate of England. We are anxious to see it proved that Tarsonemus woodi has been positively ascertained as the main symptom of May disease, and of Isle-of-Wight disease, which have been puzzling the beekeepers of nearly every country for centuries. Evidently our scientists are getting their finger on the spot. We will now need a preventative and a remedy, while at the same time breeding from the best strains.

### Old Combs

Dr. Brunnich's photos of combs, contained in this number, with his interesting article concerning old combs, have been published by us, in 1916, but they will bear reprint.

The coating of the inside of the cells, with a slight film of wax, which is generally called "burnishing," was thought to be only a sort of "polishing" by the bees. But it is well-known that the queen does not lay in cells till they have been refreshed in this way.

Dr. Brunnich's statement agrees with that of others, that the cast-off skins of the larvæ add but little to the thickness of the cells. The excrements, especially those of the drones, have a great deal to do with the increasing darkness and thickness of old combs.

### In England

The June number of the Journal of the Ministry of Agriculture, published in London, contains a very interesting article from the well-known Tickner Edwardes, on the modern beehive. Mr. Edwardes puts himself on record as favoring a thicker-walled hive than those in general use and, if possible, a hive with "dead-air cavity walls not less than three inches thick over all." There is but little doubt that our ordinary beehives, made of so-called inch lumber, which is actually but little over three-quarters of an inch in thickness, are hardly thick enough to insure the bees against quick changes of temperature. The old-time straw skep, in its insulating properties, was very far ahead of the thin lumber hive. It would be good if we could combine the qualities of the old straw skep with the facilities of the modern movable-frame hive, without too much expense.

### Carniolan Beekeeping

Our readers will be interested in the short article on the above subject by Mr. Miklovitch, and in the photos,

one of which decorates our cover page.

The hives described are handy for transportation, but to an American, accustomed to a top-opening hive which may be tiered up several stories, these hives, which are confined to one super, would seem exceedingly inconvenient. A modern beekeeper in America can hardly picture to himself any hive but the one with movable ceiling, with the combs removable from the top. With the Berlepsch system, the hives are made like so many closets and the frames are always removable only from the rear. Either the combs run parallel to the outer wall, and in that case every comb has to be removed if one wishes to reach the one nearest the front; or, if the combs are at right angle with the entrance, they must be removed from the end, with pincers.

The Europeans who use this system claim several advantages for it, the main one being the compact shape in which an apiary may be kept, in a country where space is expensive. They also prize the possibility of handling bees and doing the work at any time, even when it rains. There is nothing exposed to robbers during the manipulations and one easily learns a number of methods to simplify the work. But any one who has ever tried hives with hanging frames of the Langstroth system and the tiering up of supers will soon become disgusted with a system which permits of only one super at a time and manipulation from the inside of a closed room.

### Fruit Crop Short in Middle West

According to recent statistics, the fruit crop this year will be much shorter than last. Conditions of apples for 1921 is given as only 41 per cent of 1920 for the United States, and only 32 per cent for Illinois.

Moreover, in many sections, there will be no peaches, pears, plums, and very few berries.

In our experience a short fruit crop means a large demand for honey. Not only should we feel encouraged, but we should use every effort to spread the use of honey as a substitute for canned fruits.

### The Flood in Colorado

In a recent letter from Colorado we learn of the death, by drowning, of Mr. W. A. Dolsen, a beekeeper, at Avondale, Colo. On the night of June 3 the Arkansas River at flood stage completely wiped out his home and apiary, carrying his body with the debris, far downstream.

Mr. Rauchfuss, of the Colorado Honey Producers' Association, states that at least 1,000 colonies of bees were washed away by the floods in the streams from Denver north, while in the Arkansas Valley the losses are said to be very much heavier.

A good deal of sweet clover growing in the bottom lands has been destroyed by being covered with mud. On the other hand, the copious rains in other locations make the outlook for a crop hopeful.

**FIRST AID TO THE BEEKEEPER**

By Prof. H. F. Wilson

Co-operative effort is absolutely necessary for the success of any industry, and until that effort exists there can be no great success in ordinary times, and under adverse conditions lack of organization means severe losses to all.

Bee husbandry has received a great impetus during the past few years and the methods of manipulation have been greatly improved thereby. A great part of this is due to the efforts of research and extension workers. First we must have the information; this is secured by the research worker. Then the knowledge must be carried to the beekeepers. This is done by the extension agent.

But in order to do this the beekeepers must respond and attend the schools and meetings held by the extension agents.

It is often a difficult problem to get the beekeepers to co-operate in the different phases of state and local matters, but it can be done by giving the beekeepers a part in the work.

In Wisconsin we have been working on this problem for five years and the plan of organization and extension work has developed beyond our highest expectations.

Mr. Pellett has asked the writer to give a short outline of our plan for the American Bee Journal.

Our success has been due to two things:

First—A well organized plan.

Second—Thorough co-operation between National and State agents and the beekeepers.

A plan, to be carried out, must have someone to do the work. In our case we have been very lucky in having a number of men to help with the meetings.

At different times we have had Mr. G. C. Mathews, Mr. G. H. Cale and Mr. H. L. McMurphy as special agents from the United States Division of Bee Culture, and Dr. Phillips and Mr. Demuth have conducted two summer schools for us.

In the State we have had:

Dr. S. B. Fracker, State Entomologist.

Mr. C. D. Adams, Assistant Deputy in Apiary Inspection Work, and Special Agent for the Division of Markets.

Mr. J. I. Hambleton, Apiarist at the University.

Mr. H. L. McMurphy, Special Field Agent working under the co-operative direction of Dr. Phillips, Dr. Fracker and the writer.

The writer has also given much of his time to the organization work.

In addition to these men Mr. E. R. Root, of the A. I. Root Company, has helped at the bee schools, and the G. B. Lewis Company have placed two men at our disposal, Mr. Kenneth Hawkins and Mr. E. W. Atkins, who are now serving with us when called upon.

The State is now well organized and all meetings are arranged through the County Agents and the officers of the local associations. There are forty-one local associations

in the State, twenty-nine of which are an affiliated part of the State Association and have a representative on the Board of Managers of the State Association. This Board of Managers meets annually to decide on the policy of the Association for the following year.

To carry on the work we plan to hold two meetings a year with each local association. These meetings consist of one winter meeting or a three-day bee school and a summer meeting or demonstration at the yard of some beekeeper.

The publicity work has been almost entirely conducted from our office and our plan is to send notices of the meetings to each newspaper in a county where the meeting is to be held. The first notice is sent out two to three weeks beforehand and the second a week to ten days before the meeting.

The three-day bee schools have proven the most successful method of extension work and they have been well attended by the beekeepers. A general program of each school is outlined and published in the local papers. In some cases mimeographed outlines are sent out to every beekeeper in the country. One local association now sends a printed notice and program to its members.

At several of these schools we have had an average attendance of over 50 beekeepers for each meeting and a total registration of more than a hundred.

As a rule the beekeepers do not begin to come until about noon of the first day and the afternoon of the third day is given over to the local association, so that two full days of instruction can be given.

The beekeepers Chautauqua and field meet has been very well received by the beekeepers and many attend from all parts of the State. This meeting is held always during the third week in August and in 1921 it will be at Chippewa Falls, Wis., during the week of August 15 to 20.

Dr. E. F. Phillips, Mr. E. R. Root, Mr. Demuth, Mr. Kenneth Hawkins, Mr. E. W. Atkins and Mr. C. P. Dandant will be with us. Beekeepers from neighboring States are invited to come and meet with us if they so desire.

Wisconsin.

**GLIMPSES OF CARNIOLAN BEE-KEEPING**

By M. B. Miklovitch

The accompanying pictures show something of Carniolan beekeeping: No. 1 represents one of Mr. Anton Znidarsich's migratory apiaries. These hives are specially erected for moving purposes. Mr. A. Znidarsich lives in a location where they have several short honey flows in a season and in order to get advantage of these pastures he made a hive that can be moved with as little labor as possible. There on the wagon are forty hives, twenty on each side, same kind as in the stack. These hives on the wagon cannot be taken apart, as the whole side of the wagon is a wall with partitions. Everything inside is made of very light lumber, but the outside walls are double, with straw between. Each hive opens at the back. The door of the hive has a screen which has to be opened so that the bees get necessary air while on the moving trip. It takes but a few minutes to get such an apiary ready for moving. Picture No. 2 (cover page) shows another of Mr. Anton Znidarsich's wagon-apiaries. Posts under the wagon keep the wagon level. Mr. Anton Znidarsich operated, before the war, over 1,500 colonies of bees. He has a large number of American hives in his home apiary.

Picture No. 3 shows a beautiful bee house of Mr. Frank Zelenik, of Carniola. This bee house contains forty hives, twenty on each side. Mr. Frank Zelenik keeps his bees as a side line, mostly for pleasure, even though his last year's crop was 45 kilograms per colony, or a little over 99 pounds.



No. 1.—Apiary and wagon of Mr. A. Znidarsich.



Picture No. 4 shows one of the bee houses which are used by depot agents through Carniola. This house is made so that it can be taken apart and moved away, if agent is discharged. This type of bee house is common among Carniolan depot agents. Note the pictures on the hives!

Minnesota.

### PLAN FOR FINDING COST OF PRODUCTION—EXTRACTED HONEY

By Elmer T. Beach

The principles behind all cost finding are really very simple. Labor spent in production, expense of operating the production plant, raw materials used, and provision for returning to the producer the amount of his original production investment, these, together with record of the amount of production, give all the necessary data. Nothing elaborate in way of accounts is necessary. It does not matter how the facts are arrived at. It is my opinion that any person producing from as many as ten colonies should know, without guess work, what his output costs. Business conditions may compel him to sell below cost of production, but at any rate he will know who is getting it in the neck if he does.

**Productive Investments**—First to consider is necessary production investment. For my own convenience I divide these into two parts:

**Stack Investment**—Constituting:

1. Value of original swarm, whether purchased or produced in your own yards. If produced, for the sake of uniformity I will value bees and queen at \$5 each swarm, and give the producing yard credit on production cost for that amount.

2. Wood work of hive stack sufficient to care for a normal crop; if a Dadant hive, say 1 top and bottom-board, 1 inner cover, 1 hive-body and 4 extracting supers, including nailing and painting; also 10 brood-frames and 40 extracting frames, in-

cluding wiring and nailing.

3. Full sheets of foundation for each frame, including imbedding.

4. Labor of the bees in built combs, estimated and credited to the producing colony and yard.

All of the above constituting stack investment, to be depreciated into cost of production and returned to the producer out of the profit at a rate of 10 per cent per annum, in addition to repairs and upkeep, so that at the end of ten years the original investment is refunded and the stack paid for.

**General Plant Investment** will include:

1. Honey house.
2. Extractors, tanks and other necessary equipment.
3. Winter cases and miscellaneous investment.
4. Trucks.

These, together, constituting general plant investment, to be depreciated into cost of production as follows:

5 per cent per annum on honey house, if frame; or 3 per cent if brick, or 2 per cent if reinforced construction, as allowed by government regulations.

10 per cent per annum on all other equipment, except trucks.

25 per cent on trucks.

The whole of this depreciation, in addition to general repairs and upkeep, being apportioned among the home yard and various outyards on the basis of number of producing colonies, spring count.

### COST OF PRODUCTION

In arriving at production cost, I would consider my fiscal year as beginning November 1, preceding the production season and ending October 31 of the production season. I would treat and consider each yard or outyard as a producing unit, and not the individual colony, although individual colony records should be kept. The cost to be based on the entire year's output from the yard in 60-lb. cans or larger wholesale re-

ceptacles turned over to the warehouse and the commercial business for distribution, regardless of the quality of the honey, and the production cost account, when made up, would look about like this:

#### Production Cost Account—Home Debits

1. To inventory all honey in hives Nov. 1 preceding production season and stores set aside for spring feed at cost ----- \$
2. To purchase cost of sugar and honey fed as shown by cash and check records -----
3. To pay roll, hired help -----
4. To taxes and insurance -----
5. To 60-lb. cans and other storage receptacles -----
6. To miscellaneous repairs and upkeep of hive stack, etc. -----
7. Labor of proprietor when performing manual labor of production, figured at cost of hired help -----
8. Rent of apiary yard site, whether hired or owned -----
9. Cost of requeening—
  - (a) Purchased queens -----
  - (b) Produced queens, for the sake of uniformity producing yard to have credit for \$1 each, for queens produced and used -----
10. To depreciation reserve for refunding stack investment, 10 per cent per annum -----
11. To pro rate portion of depreciation reserve for refunding central plant investment, as above -----
12. To superintendence -----
13. To share of executive administrative expense (if desired) -----

Total cost of production ----- \$

#### Credits

1. By new brood-combs built during season, charged to investment ----- \$
2. By new extracting combs produced during season, charged to investment -----
3. By new queens produced and used either in investments for increase or to requeen other yards -----
4. By new swarms hived and used, either in producing yard or outyards (no credit for absconding swarms and queens) -----
5. By cappings and scrap wax other than salvage on investment for old combs disposed of -----
6. By inventory honey on hand in hives or saved for feed Oct. 31 production season -----
7. Balance net cost of honey crop carried forward to merchandise account, the same as though purchased from any other source -----

The above net cost of production divided by the whole number of pounds of salable extracted honey produced in the yard and delivered to the warehouse ready for distribution gives net average cost of production, which should be recorded by the hundred pounds.

It will be observed that no attempt



No. 3.—Apiary house of F. Zelenik, in Carniola.



is made in the above plans to cover complete accounting for a honey business, but, as the title indicates, only cost of honey production is considered.

In all general factory accounting the factory or production accounts are always treated independently of the many requirements of a general commercial business, and the output of the factory is turned over to the selling organization at cost. In the production and distribution of honey, the home yard, with its central production plant and the outyards, take the place of the factory, and in the foregoing plans it has been my aim to show the cost per one hundred pounds of honey produced in any given yard in receptacles ready for wholesale distribution. It is true that honey may be produced and laid in the warehouse at a very satisfactory cost, and poor management, poor judgment or other adverse business conditions in selling and distributing may result in heavy losses.

#### Cost Sold, or Market Cost

Before profit or loss can be declared the general accounting covering the distribution and general business must be considered, and this will take in besides cost of production given above.

1. Executive and administrative salary and expense.

2. Traveling salesmen's salary and expense.

3. Advertising and general publicity expense, either treated as investment and written off over a period of years, or as direct charge against current business.

4. General office and warehouse expense, transportation, etc.

5. All other miscellaneous expense.

Furthermore, no man engaged in honey business would be justified in reporting as profit for the purpose of income tax his entire profits in his very best year, because as a practical honey man he has operated under conditions which he knows may not occur again for years. Hence, in addition to his actual business expenditures, adequate provisions in the

shape of reserves must be built up from profits to care for such things.

7. Reserve for meeting excessive winter losses, possibly 10 per cent on swarm investment.

8. Reserve for meeting epidemic disease losses, possibly 5 per cent on swarm, frames and comb investments.

9. Reserve to meet loss from crop failure, possibly 10 per cent on production cost. But as none of these has anything to do with cost of production, they should be treated rather as a matter of judgment in connection with complete accounting. Such reserves should be reasonable and just, based on your local conditions, the object being not to fool yourself into thinking you have made a great deal of money in some favorable year. All that will be permitted in income tax accounting is your actual loss, regardless of the amount of reserves.

Michigan.

### THE SEASON OF 1920

By F. Dundas Todd

Our weather man in Victoria has explained it all away, in fact has proved himself almost as great an adept as was the famous W. H. Gladstone, who was supposed to be able to explain anything away, even the existence of Garibaldi's wife. He showed us how, two years ago, Jupiter Pluvius must have gone mighty wet when so many folks were going dry, and had wandered greatly from his orthodox habits, pouring out rain continuously where it was not needed or wanted, and forgetting altogether vast areas all over the world where everything was burning up under the fierce rays of an unshaded sun. However, he gave us a lot of consolation by informing us that the great air currents were apparently returning to their orthodox paths, and he thought the worst was over. Furthermore, he felt bold enough to prophesy a mild winter for us on Vancouver Island, and we certainly are enjoying balmy breezes in No-

vember, a great improvement over what we had in September and October, when we had chilly winds and continuous rain.

April, May and June were, with us, cold and wet, but beekeepers did not worry much about that, as generally speaking such a condition means a good honey crop in July, for the ground holds the moisture in the dry summer months and puts the nectar in the alsike clover and fireweed, especially the latter. But July and August were dreadfully dry, and we had for the second season missed our heavy June rains at the end of the month, so the result is that the honey crop in the wet belt of British Columbia is probably the poorest in many years.

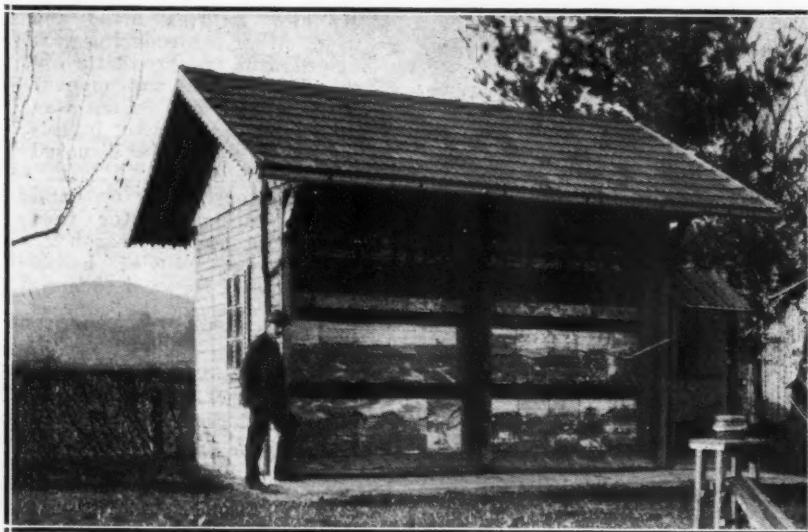
My own crop was worse than nothing. I did not have enough on hand for safe winter stores, so I made careful inventory and found I had 1,250 pounds of honey on hand for 38 colonies, an average of 33 pounds to the hive. At one time I would have thought this an ample amount; in those days I figured on stores for winter only, and knew that about 20 pounds was ample between the first of September and the middle of March. Wiser grown, I now want stores sufficient for winter and spring, especially spring; so now, on September first, I like to see at least 50 pounds in the hive, 20 to winter on and 30 to spring on, and that is not too much.

So I divided 1,250 pounds by 50 and found the answer to be 25, the number of colonies I could carry through the winter and spring with efficiency. Then I did something I have never done before. I marked for extinction a dozen colonies, divided their stores and brood among the favored ones as needed, and then smothered them with sulphur. I have 26 colonies, all of good Italian stock, the queens being nearly all of this season's raising. I have bodies and combs complete for nearly as many more, so I am not worrying any, as with an ordinary spring I can double my forces easily and have them all in shape for the July flow.

I am glad to say that I am not out of pocket on the season's work, for I sold everything in my yard that was odd size—that is not Dadant-Jumbo hives—made many betterments, and have a fair balance in my favor.

#### Making Inventory

As usual, following good old Dr. Miller's custom, I made inventory in the end of April of the brood and stores on hand, then arranged the figures under various groupings to see what I could learn from them. To outward appearances every hive in the yard, excepting one, was Dadant style, but only thirteen were so in fact. The previous season had been a poor one, with the result that 24 colonies had plenty of brood in the brood-chamber, but no stores to speak of, so I had to leave the necessary honey in shallow frames above. Quite naturally the bees formed their winter nest on these, so in April all the brood was on shallow combs. When, therefore, I took stock I had



No. 4.—Bee-house of a depot agent in Carniola.

to express all the brood areas in terms of shallow frames, so as to get a comparison. On finishing my tabulations I got the following average figures:

	Sept. Honey lbs.	April Honey lbs.	April Brood frames
Jumbo frames--	47	8	5½
Shallow frames--	41	11	4¾
Whole yard ----	43	10	5

When examining the brood I was particularly struck with one feature of the brood nest in the Jumbo frames, the tendency of the queen to confine her laying to a few frames, rather than to try to attain the globular form of a broodnest, which is theoretically correct. As the season advanced I watched this condition closely, and found that she added one frame at a time, laying right from top bar to bottom bar, and from end bar to end bar. My visitors enthused over these magnificent frames of brood, and I secretly felt very proud of them.

It will be noticed that the bees in the Jumbo frames had the advantage in brood area by 16 per cent; as a matter of fact the gain is even more, as I considered a patch as big as a dollar, a frame of brood when taking stock of the shallow frames, while in the case of the Jumbo frames I would call a solid frame of brood the equal of two shallows. As I have already pointed out, the plan of laying in the two styles of frames was quite different. But on the large frames the bees had consumed on an average 39 pounds of honey as compared with 30 pounds consumed by the bees on shallow combs. This is quite interesting to me, because for several years, ever since I read Henri Fabre's famous insect books, I have been wondering how much honey is needed for the making of a bee. I have made no attempt to find out by experiment; such a thing is impossible for a wanderer, but such facts as have come under my notice suggest that a larva consumes about four times her finished weight in honey, and probably much more than that in pollen. I notice a recent writer says a frame of honey will make a frame of bees, so he apparently agrees with my estimate; hence, if we are nearly correct, this conclusion follows: there must be provided in the hive one pound of honey for every thousand eggs the queen lays.

Let me argue this matter out. I learned years ago that my bees in Victoria consumed an average of 18 pounds between the middle of September and the middle of March. Last year my hives were all prepared for winter by the first of September, while my first examination was made at the end of April, a period of seven months intervening. The sustenance consumption would be about .21 pounds for that period; therefore, in the hives with Jumbo frames about 18 pounds were consumed in April to feed the equivalent of five and a half shallow frames of brood, while in the shallow brood-chambers seven pounds were needed to feed four and three-quarter frames of brood. The utmost

limit of brood in shallow frames is 4,000 larvæ, so the figures indicate that the minimum consumption is half a pound, the maximum, one pound, for every thousand eggs laid by the queen.

I know I am theorizing from very inexact data, but I am simply making a start on this very important phase of practical beekeeping, and will in the future be more careful in my observations. But my guess, call it such if you like, is confirmed by one beekeeper, who found 42 pounds of sealed honey in the supers at the end of the maple flow, which all vanished in fourteen days of dearth that followed. It was a powerful colony, and we may assume the queen to be laying at least 3,000 eggs a day. Three pounds a day consumed, three thousand eggs laid, consequently one pound of honey for each thousand eggs, provided, of course, the bees could gather enough nectar to sustain their own life.

If my memory serves me correctly Arthur C. Miller is responsible for the statement that our conception of the bees dancing attendance upon the queen for sheer love of her personality is a mistake, that the workers feed her only when they are handling honey. In all bee literature no statement referring to practical beekeeping ever impressed me so strongly as did this one, for it opens up a tremendous vista, and puts out of court a vast amount of matter that has been written about spring feeding and stimulation. With insufficient stores in the hive in April I would have to feed one pound of honey per day to each hive for several weeks to get the queen to lay a thousand eggs, for we have no nectar coming in for quite a long time after the bees are flying

freely. I am perfectly aware that in the east the gap is much shorter, that the season rushes from winter to spring.

To feed a pound of honey a day means wearing out the old bees at a time when we want to conserve them until their successors are in the hive, while stimulative feeding—that is a small quantity—simply starts the ball a-rolling, and is worthless unless there is honey in the hive to back it up. Handling honey, the bees feed the queen, she consequently begins to lay, then the bees must feed sealed honey to the larvæ, and in doing so they handle more honey, so she is fed more and lays more eggs. It reminds one of the old nursery story of what happened when the fire began to burn the stick, the stick began to beat the dog, and so on. But the advent of pollen generally starts egg-laying, then with plenty of honey in the hive the seasonal development goes on apace. The bee inspectors of British Columbia have, bit by bit, advanced the minimum amount of honey to be left in the hive at the end of August, until now it is at least 50 pounds, and they hold that 60 is better, much better.

One of these bee inspectors tells a rather good joke on himself. In the fall of 1919, when he was extracting, he got the chance to go on a hunting trip for three weeks, and jumped at the offer. He had in sight fully 900 pounds to extract, but he would get it in the spring, so it was all right. In May he started to get the honey, but found only forty pounds possible, the rest had been turned into bees, and such colonies he had never seen. For a while he cursed his luck, as he had needed the money, but at the end of the month he had available

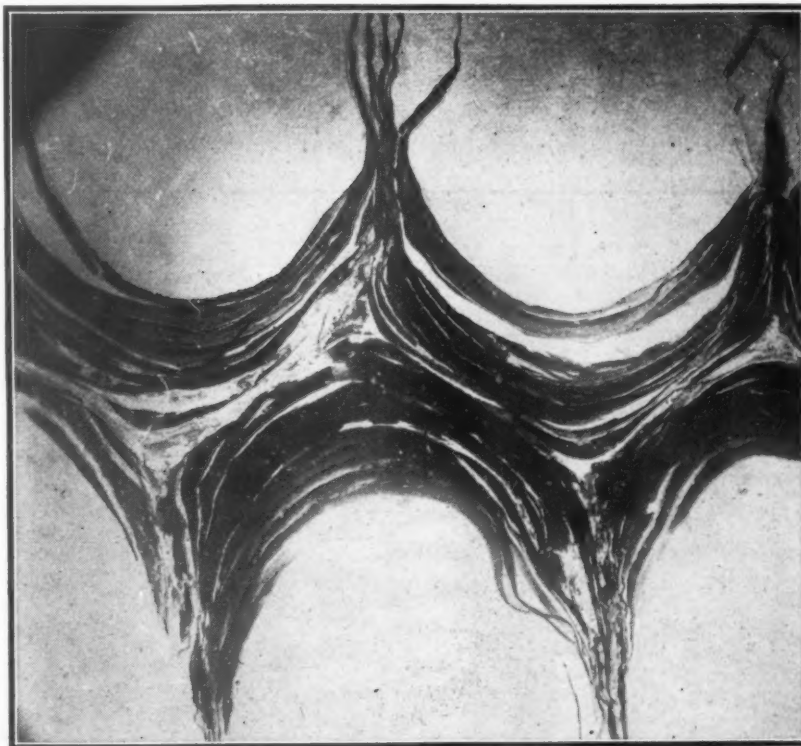


Fig. 1.—Section across a very old worker comb.



half a ton of fine crab apple and dandelion honey, something he had never seen before. He was thus ahead of the game by rousing colonies early in the season.

Further comments on my spring stock will come later.

Victoria, B. C.

### OLD COMBS

By Dr. Brunnich

When a big bumblebee, awakened by the smiles of the vernal sun, flies about from morning till night, seeking honey, and when it then builds its rough little home in any corner, without the help of comrades, it certainly does not imagine that in autumn that building will be empty, a prey to mice and other vermin. Next year its daughter does the same, and so it has gone, for centuries, and will probably go on for thousands of years to come.

Quite another thing it is with its cousin, the honeybee. While the bumblebee's nest resembles the tent of the wandering human nomad, the dwelling of bees may be compared to the proud palaces of the civilized world. Such a palace does not harbor a few generations only; oh no! Perhaps a hundred or more generations may come and go, before the glorious building, whose walls once glittered like gold, harbors the last descendants of its first mother queen. But now the walls are dark, though sound as the first day. This glorious "Ilion" will fall to pieces only after the prudent little inhabitants have been stricken by a catastrophe, whether their mother died without leaving a successor or black hunger killed them at the end of winter. And then inexorable fate will destroy the home as well as the people, the bee palace's combs change to dust, devoured, not by the tooth of time, but by the greedy jaws of the waxmoth worm, which finds in the old mansion a paradise for its development.

We are told that, with time, the walls of the little bee cabins become

thicker and thicker, and that the bees reared in them become smaller and smaller, till they are scarcely larger than flies; so thick, in fact, that it becomes impossible for bees to be reared in them.

To me, this thickening of the cell-walls always seemed a cruel thing, and not very wise, from Mother Nature. Therefore I wished to examine the matter closely. I secured some very old combs from a bee-skep, a straw basket of the kind that have now become very rare. If we hold such a comb, of 5 or more years, against the light, we will see that the bottoms of the cells are of a shiny brown color, while they are so thick that the light cannot penetrate through. If we cut through the comb with a hot knife, we find that the cell bottoms are very thick, while the side walls do not differ much from those of young cells. Therefore the diameter of the cells has diminished but little, and by lengthening the depth of the cells, the bees restore their depth. Already, Reidenbach, by filling new and old cells with water and measuring the contents exactly, has found that there was practically no difference.

By putting the pieces of combs for some hours in benzine, which dissolves the wax, it is easy to tear from the cells one layer after another of the coating of those cells. We find that, at the bottom, the layers are thick, while the sides are exceedingly fine. I found that about 18 layers of the bottom measured one millimeter, while the thickness of the sides is about 1-500th of a millimeter. In figure 2, I have reproduced sections through a nearly new worker comb, through an older one and through a drone comb. In a rather intricate manner, I succeeded in making thin microscopic sections across combs, which I have reproduced photographically. Fig. 1 shows a very old worker comb. Fig. 1 especially demonstrates nicely the different layers. The black in the middle represents the wax which, by the preparation,

has been dissolved. The different little sacks, which, after soaking in benzine, may be extracted, are nothing but the fine skins which the larvae have left in the cells when emerging. The dark mass on the bottom is the excrement of the nymphs.

When I separated some of the layers without the use of benzine, by simply soaking the combs in water, taking care not to remove any part of the wax cells, and dissolved these in benzine, I secured small quantities of wax. This proves that the bees coat the inside of the cell with a very thin layer of wax, after the young bee has left it. They do like our women when they rub a parquet or parlor floor with wax. Careful and proper as our bees are, they thus cover the above mentioned shells and excrements with wax, that these may not offend the fine nose of the queen, who thoroughly inspects every cell before laying an egg in it. So we see that the bottom of an old cell is composed of the following layers:

First, the primary wax skeleton of the new comb, when built; next, a layer of skin and excrements; then a thin wax skin, then excrements, etc. We then understand why we obtain less wax by melting, from an old comb than from a new one, because, in the first, there are, besides the excrements, the skins of the larvae which have dwelled in the cells.

The danger of old combs becoming smaller with age is not so great as many beekeepers imagine. It is, however, different with drone cells. There we find that the side wall soon becomes considerably thicker and every versed beeman knows that the size of drones may differ considerably. For that reason, I renew, by cutting down, the drone combs in my hives each spring, to obtain large drones. If I did not, I would soon have in my hives drones of a miserable size, which would not guarantee a strong progeny for my queens. In hives which are expected to serve as purveyors of drones, for a mating station, I advise the cutting out, in early spring, of all the drone combs, allowing the bees to rebuild them and thus securing giant drones.

Switzerland.

### THE NEW BEE PARASITE

Our readers will remember that in December, page 408, and in January, page 24, we gave quotations from our English correspondents, showing that a new cause of the bee disease was discovered at Aberdeen, in the shape of a very small mite which invades some of the breathing tubes of the bee and is thought to be the cause of Isle-of-Wight disease, since specimens of this mite have been found in every colony suffering from the disease. It is also known that the Isle-of-Wight disease was first thought to be due to the Nosema. But later investigation showed that the one had nothing to do with the other.

We are interested, in this country, regarding this malady, because it so closely resembles what is generally called bee paralysis, the disappearing

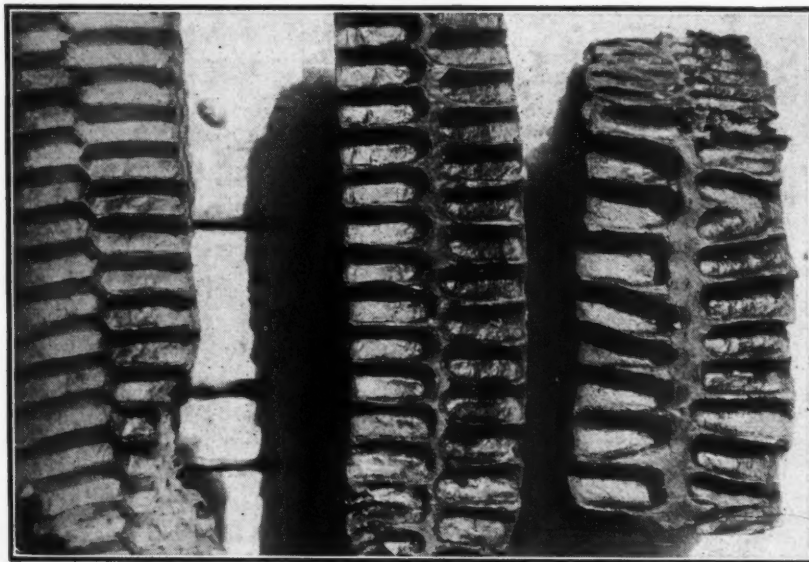


Fig. 2.—Section through a new worker comb, through an old worker comb, and through an old drone comb.



disease, or May disease. Whether this Tarsonemus has anything to do with our troubles, on this side of the ocean, will certainly be ascertained before long by our scientists. Meanwhile it is well to understand fully what the Tarsonemus is. We therefore insert below a very interesting letter from Dr. John Anderson, of the North of Scotland College, who kindly sent us two articles concerning this matter, the gist of which had already been inserted on page 24, coming to us from Mr. A. H. E. Wood, one of the parties to the discovery.—Editor.

"So far as I can learn, there is no doubt whatever that the Aberdeen workers have discovered a new parasite of the bee, and they believe that it is the actual cause of what has been called Isle-of-Wight disease.

The new parasite is a mite, a creature with eight legs, classified with spiders, scorpions and creatures like that in the Class Arachnida. The most familiar example of the type is the mite frequently found in cheese. Another type causes the disease known as itch. About half of mankind harbor a type of mite in the skin of the nose. It is called Demodex, and is of no consequence.

*Braula caeca*, commonly found clinging to the hairs of bees—frequently on the queen—is higher up in the scale, being an insect like the bee itself. But Dr. Rennie showed us, in London, a photo of another mite about the same size as *Braula* and very like it in appearance, which they have found in much the same situation as *Braula*. This mite is also new to science, and we shall have to be on the lookout for it. Dr. Rennie thinks it is often mistaken for *Braula*. We shall be able to distinguish, for *Braula*, the insect, has only 6 legs, while the mite will have 8.

The new creature, *Tarsonemus woodi*, is of such a size that only one pair of the thoracic spiracles of the bee can admit it. On this account it is confined to quite a small part of the breathing system of the bee, but that is a rather important part. The workers state that they have been able to produce the special symptoms of Isle-of-Wight disease by blocking these two spiracles with wax. If that be really true, it will

not be necessary to assume blood-sucking, injury to the tracheae, production of toxins, as Professor Thomson supposes.

We have no definite information as to how bees become infected, as to whether combs, honey, and so forth, convey the disease. Dr. Rennie says it is very difficult to say when the mite is really dead. Professor Thomson indicates some of the difficulties of the new hypothesis. Either *Tarsonemus* was always a parasite of the bee, or it was not. If it lived in the bee prior to 1904, why did the bees not "crawl" before that date? If it entered the bee only in 1904, where did it live before that?"

#### FOLK LORE

By E. G. LeSturgeon

In reference to your editorial concerning prayer for the stopping of swarms and in particular to the suggestion that the red clover corolla is made too deep for the honeybee because of its persistence in working on Sunday, would say that it is an interesting coincidence that among the negroes of the South there is a folklore belief that the honeysuckle nectar is inaccessible to the bees for the same reason. The plant is popularly supposed to secrete the greatest amount of nectar for its size, compared to any other plant. It seems that the bees persisted in working upon it on the Sabbath even after the matter had been called to their attention and as they persisted in doing so, the anger of the Lord deepened it as a punishment to the bees.

#### BEEES OF AFRICA. NO. 2

By Ph. J. Baldensperger

Thousands of years ago, says Plato, there existed a country known as "Atlantis." The Egyptian priest related the story. Modern writers have denied or affirmed the possible existence, in former times, of a continent between Africa and America, some traces of which still linger in the Canary Islands, the Azores, etc. Others hold that the Sahara is really that legendary country. In this case, the Saharian bee may be a relic of that sunken continent, and the Cyprian bee may have been brought by early settlers from Atlantis. The Saharian yellow bee is found all along the Saharian borders, where a few honey plants still linger, honey plants all more or less armed with formidable thorns (as in Texas.—Editor), to defend themselves against camels, giraffes, gazelles and other herbivorous animals.

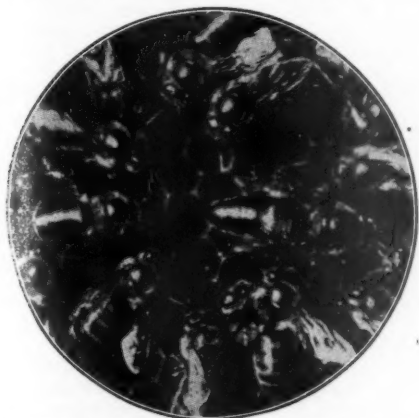
On account of so many difficulties, the poor Berbers, as thorny and fleshless as the plants, are excusable for refusing to sell the few hives which they possess. I visited many oases and, fearing to come home without bees, I put all of the little remnant of Oriental wit which I still possess to contribution. I called upon caids and leaders and spoke to them about peace and war—to begin with questions which interested them more

than the bees for which I had come. A Moroccan Mograbin, in his beautiful red and blue mantel, led me to a venerable caid, who took me in and showed me the "medaille militaire" which he had received from the French Government for his services during the war. It looked very imposing on his white "burnous"—the long mantel which the North Africans invariably wear. Having invited me to a cup of tea, made in a Russian samovar, we sat on sumptuous cushions and carpets, and talked about interesting subjects while sipping finely prepared tea. Caid Bushta was sorry he could not help me to a swarm of bees, but assured me that with patience and roaming about the black mountains in the distance, I could get some. Perhaps I might have gone some other time, but I had no time to lose, and one of the French commanding officers warned me not to go so far: "Il y a toujours des individus qu'on ne connaît pas. N'y allez pas." (There are always some people whom you do not know. Do not go.)

However, I played what I thought to be my last card, when I went as far as the entrance of the wild gorges or mountain passes of the Great Atlas. I had read somewhere that very rudimentary engravings representing animals were found on the pink-colored rocks of the Algerian-Moroccan frontier. With some difficulty, for I had no guide that day, I found rocks with inscriptions, not over a few centuries old, principally names of conquerors, and neglecting to give dates. But on two immense blocks, an ancient sculptor had engraved two strange figures. One represented an elephant with a tusk as big as its legs (the sculptor was evidently no Rodin.) The trunk appeared to be raised to gather leaves from some lofty tree. But here is where a beekeeper's imagination may work. The other engraving showed also some shape of an elephant without a head, but with two Greek spears on its back, and a warrior near him, apparently ready to shoot any supposed enemy, in defending his booty. We know that elephants existed in north Africa, in Carthaginian days, and when Hannibal went over to Spain he had elephants with him.

Back again to civilization, and traveling on the train, I was told by an Arab employe that he knew of a man by the name of Abdel Wahah, who owned bees. I left the train at that station, Sitti Sahrya Safra, and went to this man at once. I greeted him, calling him by name. He was astonished, and when I told him that I wanted to see his bees he was still more astonished. He sent a man with me to look at the bees, but he refused to let me have any. I stopped a moment, reflecting. Then I walked up to him and said: "Give me your hand." Then I recited the first chapter of the Coran, which he recited after me, and when we said Amen, he called out: "Sahh! You are a good man and you shall have the bees."

Without losing any time, I took my box and went to his walled-in apiary. I opened the end of one hive, smoked the bees and cut out four combs,



Saharian queen brought from the Sahara, 400 miles south of Oran, Algeria.

which I fastened into small frames, brushed the box full of bees and then looked for the queen. Wahah put in his hand, drew out a handful of bees and shook them into my box: "The Sultana is in," he said, "you may shut your box." "No," I said, "I must see her first." When I finally found her, I took her by the wings and said: "Here is the Sultana," and dropped her in the box. My work was accomplished, and I went to the train with my trophy. Eight days later I was back in Nice.

Now let me tell of the experience which I had of their well-developed scent organ:

I was taking honey from a small apiary, in Nice, about a mile distant from the place where I keep the Saharian and Tellian bees which I brought home. I was telling a friend about the new yellow bee which I brought over the Mediterranean and explained that she was the first one, in our day, which crossed that sea, though her far-away ancestors may have crossed the same sea, 2,000 or more years ago. While I was talking, a Saharian bee came and settled upon my finger smeared with honey. "There she is," said I. "A beauty," said my friend. Presently a dozen or more were about us, while not a single one of the Tellians appeared—a proof that the Saharian is endowed with more powerful olfactory organs and that she has long been accustomed to fly great distances for honey. Nice, of course, has nothing in common with the Sahara oases, yet, in spite of numerous gardens, and wide-spread flower cultivation, the bee readily smells the stronger odor of the honey fresh from the hive.

I almost forgot to tell you that the Tellian or Algerian bees which I brought also, are due to the kindness of the amiable Mr. Bernard, of Algiers.

Since you are fond of "local color," let me tell you of a little incident on my way from Morocco, on the train, before reaching Tlemcen. I met a venerable sheik, who turned out to be a beekeeper. We talked about honey, bees, etc. He said: "Bees, like all well-managed nations, have a Sultan." "You are joking," said another traveler, "bees have no Sultan." The sheik straightened up, as if his body was unfolding itself, and replied: "Attend to your own affairs and listen. You are ignorant and should listen to wisdom. This Christian and I (pointing to me) are wise. We know that every being has a Sultan. I have one. He is here (showing his heart), it is only the dead who have no Sultan." "Pardon me," said I, "perhaps this man is a republican and does not recognize any Sultan." "No, he is simply ignorant," replied the sheik.

Incidents like this were quite entertaining. But, as a rule, I like the Arabs and their philosophy. The French work in Algeria is immense. The Americans might have gone faster, but with an ancient nation like that of North Africa, one of the old countries succeeds perhaps better than a young nation like yours.

Now, I am studying the manners

and habits of the Sahara Sultana, as well as of the Tellian Sultana. La Saharian and la Tellian are gathering pollen and honey, just as if they had always been citizens of Nice. More about them by and by.

## I AN APIARIAN ROMANCE

### How Helen and Jim Beat Low-Priced Honey

By Amos Burhans

PA JONES reached over for the honey, in which he intended to smother another of Ma Jones' famous buckwheat cakes. In spite of the fact that he had kept bees twenty-five years and was possessor of over one hundred colonies, he never became tired of honey or the cakes that gave him an excuse to eat it.

"Land sakes," exclaimed Ma, as she put another big, brown seven-inch cake onto the stack between Pa and the Hired Man. "Land sakes, but you do love honey. It appears to me that you eat more honey now than you did twenty years ago, when you liked it."

"Yes," agreed Pa Jones, "Honey is one of the two sweetest things in the world—and you're the other. I like you both."

"Now you hush," chided Ma, a bit of color rushing to her cheeks. "Don't start up on that again."

Pa winked at the Hired Man. Ma Jones went over to the stove where the soapstone griddle was gently putting a delicious brown on the left hand side of another cake. She inspected the cake critically and then her eyes happened to stray out the east kitchen window which gave onto the south side of the orchard, where the bees had long since been quartered. This window also faced the road from town.

A horse-drawn semi-bespattered vehicle that looked like a cross be-

tween a flivver and a family surrey approached the farm. Ma Jones thought that she recognized the team of sorrels.

"Why, there's the sorrels from Harry Johnson's livery," cried Ma, as she made certain of her suspicions. "I wonder if Jim got home on the early train this morning. He's always surprising folks."

The short course at the Agricultural College was over and they were expecting their only son, Jim, though no word had come from him to warn them of his arrival. Jim had gone to take the short course in beekeeping and some other work he felt the need of since he had stuck to the farm so closely, following his graduation from high school.

The sorrels came to a halt. Ma's eyes, now close to the window pane, followed every move. A man climbed down from the rig, cap pulled down, collar turned up. He helped a well-dressed girl from the rear seat of the shay. Following her there also appeared bags, suit cases, and a spry young man who snatched them all up and started for the Jones home. Behind him stepped the girl, smoothing out her apparel as she walked.

"Well, for land sakes," ejaculated Ma Jones. She threw open the side door and hurried out on the porch. "Pa," she called, "it's Jim and there's a girl with him."

And almost before she finished, Jim tossed the hand bags on the porch, kissed his mother, and said proudly, "Mother, this is my wife, Helen. We were married day before yesterday."

"Well, for the land sakes," Ma Jones, when taken aback, always relied on her old verbal standby. At the first glance the feminine understanding that defies description, passed between them. Ma Jones swept the bride into her arms, putting a resounding period to this chapter in the form of a great motherly kiss.

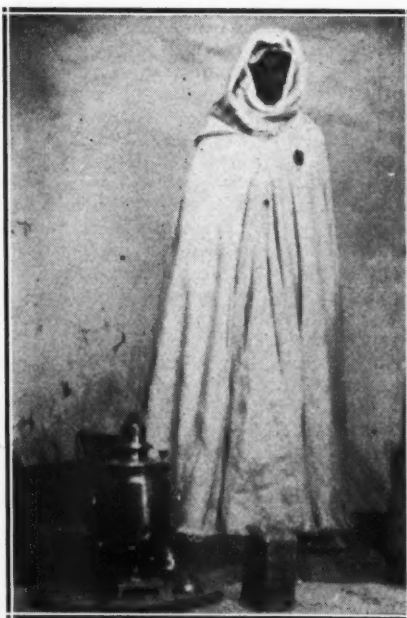
## II

"Jim has a lot of nerve for a young fellow," observed Pa to the Hired Man. Ma had gone to install her new daughter in the spare room and put on a clean apron.

"With cheap honey in sight, now that the war is over," he continued, "it'll take some hustling to maintain a wife, I'd say."

"I think I'll stick to the corn plow and the seeders and let Jim monkey with the bees," the Hired Man knowingly answered.

Now a regular novelist would put in a fine lot of trimmings right here, but I haven't the time, and don't know how. All I'm going to say is that Pa Jones didn't have the old-time pep to get down to work in the apiary. He left the spring overhauling of the colonies and hives to Jim and his bride, a bride he opined that coming from an advertising agency in the city, even though she shared Jim's bee fever, would not be of much account as a wife to an apiculturist who had no better outlook than 10-cent honey. But then, thought Pa, remembering how rosy the whole world looked when he grafted unto



Wearing the French "Medaille Militaire." Note the Russian samovar for tea.



himself a wife, Jim was young and probably felt the same way. Jim would get it all knocked out of him in a season or two and settle down to working the old farm and forget the bees and orchard and small fruits he was so enthusiastic about.

Ma Jones, however, declared Helen a smart girl. She helped her new daughter fix up a suit of white cotton for working along with Jim among the bees. Helen's enthusiasm, coupled with Jim's knowledge, which had that spring been reinforced by the work of the short course at the college where he had met her, accomplished wonders in the old apiary.

The honey house was also overhauled and new equipment added. Jim tapped the rural electric power and light line and wired the farm buildings for light, put a new motor in the extracting room, another in the basement where the laundering was done and an electric iron in the kitchen. Pa winced a little, but paid.

"Jim's got new-fangled ideas," said Ma Jones, "and everyone of them fits in with my feelings. It's a wonder we ever kept him here on the farm as long as we have, Pa."

Helen's desk and typewriter in the sitting room gave an appearance of business-like activity to the room in which she kept the records of the apiary and orchard and the farm work.

"Time will tell the whole story," mused Pa Jones. "He grins loudest who smiles last."

### III

"Dad, I want \$500 more capital to put into the business," declared Jim, one evening, when he and his father were alone. Ma Jones and Helen had flivvered to town for the last number of the season's entertainment course. "I need a couple of dozen Modified Dadant hives, more supers, and I want to buy Charlie Waite's twenty colonies and Mellberg's bees, too, and clean them up. Then we'll control everything within our range. They'll pay for themselves this season. Our queens then will be purely mated. We've got to re-queen every year or two and it'll be a big expense to buy. We'll breed them ourselves, now that I've got some good breeding queens."

"Don't forget, young man, that I sold the crop last winter for 15 cents and was glad to get it. Five hundred dollars is a lot of money! Look at these times."

"That's just what I'm doing," Jim replied, earnestly. "I'm looking the times square in the eye, and that's why I want to go ahead. With Helen's new marketing plan, we are done with 15-cent honey."

That was a new one on Pa. "What's the plan?" he asked.

"I must not give it away now," Jim answered.

"Going to hook me with the mystery, eh?"

"No, only going to convince you this fall that it works. If I had thought that 15-cent or 10-cent honey was all there was left for us after a hard season's work, I'd never have gone into honey production. We have the foundation for a big, profit-

able business and we are going to make it go. Getting away and finding out how the business honey producers solve their problems has given Helen and me an idea. We are going to try to get two or three times what you got for the honey crop last winter, but it will pay to try. We have always made a fair honey crop when you had time to build the colonies up in the spring. Our range is one of the best. Plenty of maple, basswood, white clover, wild raspberries and generally a good fall flow."

"That'll be more for a pound of honey than a bushel of corn's worth now. Are you sure you can do it?" Pa was skeptical.

"Be patient and see. That's all we ask." And in seven minutes Jim had persuaded his father to yield on the additional investment. Please notice that I say "persuaded," not convinced.

"I can make \$500 do over \$600 worth of buying," said Jim. "We are members of the State Association and buy through the Secretary's office and save 20 per cent on supplies."

"You better stretch it all you can," said Pa Jones, as he wrote the check. "It will put off the big bump just 25 per cent further."

### IV

Knowledge and planning and working always perform near-miracles. And it was Jim's idea to be a miracle man. Helen was also determined on making good. In fact, Helen and Jim worked together as efficiently as Pa Jones' best team, Dick and Dolly.

Jim had taken a few of the weaker colonies and what he had purchased, and made increase which he had found a ready market for by notifying the bigger supply manufacturers that he could properly fill their orders. Good management and publicity brought more orders than he could fill. And the income brought more confidence to Pa Jones.

The supers began to pile up high as the honey flow advanced. Jim's work was bringing results that Pa Jones had never before seen. Jim was experiencing the wonderful exaltation of work that counted. The fruition of his plans gave him a splendid feeling of pride. The work in the open with bees and fruit, the time to herself that Helen had always craved, when working at the advertising offices from 8 till 6, was now a reality. Her flower beds brightened up the lawn. Other touches about the old Jones place told the neighbors and passers-by that new life had been put behind the Joneses' home affairs.

Helen and Jim worked during the evening on form letters, preparing mailing lists and advertising plans to sell the now assured honey crop, and were laboring over the marketing, all of which they mysteriously concealed from Pa Jones, who more than once tried to tune up his ear to catch the subdued conversation around Helen's desk. Failing in this he would steal opportune moments to peer over the journals he perused, trying to ravel the mystery by sight, much as a beagle which has lost the scent will cast his eyes about looking for the run-

ning rabbit that has craftily thrown him off the track.

One morning as the maples along the border of timberland in the hillside pastures began coloring the landscape with a wealth of reds and yellows, it was discovered that Helen and the flivver had disappeared from the farm.

"That's your city gal for you," Pa declared. "She's tired of the pretty country home and flowers and bees and things that she's been raving about. I been thinking all the time that she's been acting queer. Looks to me as though she's gone back to mother and the movies and town."

"Now you hush yourself," Ma Jones demanded. "Everything happens the worst in your life. I should have disappeared myself, years ago. Thirteen months more and my naturally sweet and sunny disposition will be ruined and I'll be in a sanitarium." Ma delivered herself of this in a manner that convinced the head of the house and its check signer that the better part of valor would be to hush—and lots of it!

Ma Jones telephoned and wrote letters without finding a clew. Pa just looked his part. Jim said nothing and went on with the extracting. "Even at that," he told his mother, "it's the sweetest business in the world."

And so endeth the chapter of the disappearing bride, as much as I hated to write it.

A week passed, as weeks will, if nothing stops it.

The telephone rang and Ma answered. "There's a crate o' glassware—two of 'em here at the freight house. Tell Jim to get 'em, will you please, Mrs. Jones?"

When Jim got this word he trucked into town, then locked up the crates in the honey house.

"There's dirty work going on around here," Pa Jones kidded Ma, when he came in 10 minutes early for dinner. "I ain't going to be surprised if somebody's murdered in the next chapter."

"You better be careful—it may be you," Ma rejoined, a tint of acidity in her throat. "I've been learning things and putting two and two together and—"

She was going to expend a very carefully-thought-out theory that would explain everything, when the west door opened and Helen rushed in, bundle-laden. She had driven in from the west unseen.

Ma Jones bounded to embrace her daughter, her theory generously flying out the window. "Well for the land sakes!" she exclaimed. "Where have you been, honey?"

Pa Jones sheepishly got up and said he was glad to see Helen back, too.

"I didn't think it would take near as long to see all those folks," Helen began, "but once I'd started I knew I might as well finish. Where's Jim?"

"Extracting," announced Ma.

"We'll need all that honey, and more, I think, to fill these orders." Helen opened a package. "Look them over, Pa. There's one from the biggest hotel in Strongville; here's one from the steward of a chain of small



hotels in several cities. Look! we get 35 cents a pound. There's another from the superintendent of the dining car service on the H. O. N. & E. Y. Railroad. They ought to use a ton at least. And here's a lot of smaller hotels and restaurants—they don't use so much, but they all help. I'll never rest till all the dining rooms in this part of the country serve Jones' honey. Did the serving dishes for Jones' honey come?"

"And that's where you've been?" asked Ma. "Well, for the land sakes! You do beat all, you town girls!"

Jim came in. "I heard you coming up the hill, cut-out wide open." He grinned. "Do these come up to specifications?"

He set a little glass individual honey dish out before them. It was made in the shape of a double bodied hive, with a glass top shaped like an excelsior hive cover. On one side, in raised letters was the inscription: "JONES HONEY, FROM JONES' APIARIES, BEE CITY, IOWA." On the opposite side were the words:

"JONES' HONEY EVERY DAY, ALWAYS DRIVES THE BLUES AWAY."

"That's exactly like the model, isn't it, Jim?" Helen asked. "Folks can't help but ask 'What's that?' and then they'll order it after they find out. On the menu cards these buyers are going to feature Jones' Honey from Jones' Apiaries. And there's a good profit in it for them, too. A pound makes a dozen or more orders, and, at 10 cents or 15 cents each, figure it out for yourself. We furnish the serving dishes, which they use over and over again. I sold it to every place I tried except one, and I'll sell it to him after he sees how it goes. And they all promised not to charge over 15 cents. That will create sales. We furnish it to them in 120 pound case lots."

Jim was proud of Helen. He had a right to be.

Ma Jones called them to dinner and they all sat down. After thanks were returned and the meal well under way, Pa Jones reached over for the honey with which he proceeded to float one of Ma's fritters.

"Better go easy on that," Jim chided. "That's not 10-cent honey, Dad!"

Pa Jones grinned.

So you see everything turned out happily in the end, anyway, didn't it? Iowa.

### THE PRODUCERS' LEAGUE

By A. F. Bonney

The following, from Printers' Ink, a well-known advertising publication, contains much of interest to honey producers and members of the League:

"Why advertising is needed all the time.

"If people did not move away, and some time die; if new generations did not grow up, if competitors did not compete, if people were not receptive to new ideas, then—and only then—would there be no need for advertising." This was the assertion of Milo

C. Richter, of the Harley-Davidson Motor Company, Milwaukee, addressing a convention of Harley-Davidson dealers recently."

I firmly believe that one of the principal duties of the League will be to conduct a campaign of advertising, to promote the sale of honey.

Of course the individual producer may advertise, and does, but as his supply is not constant, his advertising is spasmodic. He uses printers' ink when he has honey, but, his supply exhausted, he is unable to fill the demand already created. This works to his detriment, for after a while people will cease responding to his ads, and he fails to sell when he is supplied.

Most beekeepers who produce fair crops seem to be imbued with an insane desire to get rid of their crop as soon as possible, which is, probably a reflex of the comb-honey days, when we were advised to sell early, for reasons which do not apply now, for extracted honey will keep indefinitely, whether granulated or sterilized to prevent it. I recently saw a reminder of this in a card from a firm that handles large amounts of honey, in which honey producers were urged to sell, in view of the prospective low prices, and hopes of a good crop in 1921. This, I think, was ill advised and uncalled for.

But continuous advertising calls for continuous supply, and as the producer, that is, the average producer, cannot keep up his supply without buying, and is seldom in position to do this profitably, he is soon idle.

While the farmer always gets a quotation on his goods, grain, cream, eggs, and so on, the honey producer is asked: "What will you take?" and having no information as to values, may sell at ruinous prices to see his honey, later on, sold at twice to three times what he got for it.

Now here, I think, is where the League will function. First, by advertising continuously; second, by seeing that there is a steady supply; third, by keeping its members, and through them other honey producers, informed of the price of honey, to buyers in carload lots, to wholesalers and to retailers. When this is done, buyers, bottlers, will cease asking for

samples and "lowest price, f. o. b. destination," and quote prices.

If the honey producers of the country were entering a new field, an untried field of co-operation, the problems confronting it were formidable, but honey producers in Texas and Colorado have ventured, and succeeded. The fruit growers in California have done wonders. The demand for raising has been boosted several hundred per cent, and all the dried grapes so far produced have not gone into the home brew.

We delegate our town, county, State and national affairs to our representatives, and we can as well trust our business affairs in the hands of men as much interested in honey as we are. There is more work than glory in what they do, and less financial returns than either.

Iowa.

### REDUCING LOSSES IN SHIPMENT

The Freight Claim Agent of the Burlington Railroad Tells How

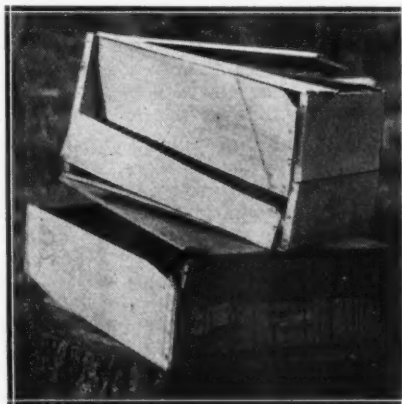
By J. D. Shields

The economic waste represented by the \$109,000,000 paid during the year by the railroads of this country, in the settlement of loss and damage claims, is attracting the serious attention of producers and consumers all over the country and is a matter worthy of the most thoughtful and constructive consideration of our best citizens.

These losses are divided into three general classes: First, due to inherent vice. Second, due to unavoidable accidents. Third, due to preventable causes. We may guard against the effects of inherent vice and we may minimize the accidents, but our efforts along these lines are necessarily limited, as the contest is with the forces and laws of nature, which we often find beyond our control. Science and invention are gradually and constantly suggesting new methods for the conservation of food stuffs and our Government officials are actively engaged along these lines with ever increasing good results.

We don't know exactly how these losses are divided as between the leading causes. We know, in a general way, that large quantities of products are lost or destroyed at the source, due to insufficient or improper care and preparation. We do know with reasonable accuracy the extent and nature of losses due to preventable causes, especially those incident to railroad transportation, every instance of which represents a destruction of material that has had some kind of labor expended upon it, and without negligence of one kind or other would have reached its destination, brought its price, served its purpose and thus have enriched the community in general.

The railroad employees realize their own weakness in handling freight and are engaged in a claim prevention campaign aimed at the various claim producing causes, in-



Serious loss is likely to result when thin lumber is used for boxing heavy packages.

cluding education and training of employees, correction and adaptability of freight handling methods, accurate billing, correct and legible marking, good packing and suitable containers. The co-operation of the shipping public is, of course, essential to the success of their undertaking.

Good packing and marking and the use of good containers are vital factors in the railroad claim situation and are subjects that are especially pertinent to the shipper. The three go well together. Each is dependent on the other and the lack of one invariably results in a casualty.

The subject of packing is too big for detailed treatment here. It depends upon the nature of the commodity, but has at least one essential feature, which is adequacy. No one knows the packing requirements for perishable or fragile commodities so well as the shippers or producers. Their experience and good judgment must be largely depended upon to prepare shipments for the ordinary shocks of every day railroading.

Correct marking is elementary. Old marks should invariably be erased from second-hand containers. When consignor's name is shown it should be prefixed by the word "from," to distinguish it from the name of consignee. Street and number should be shown whenever possible and markings on packages or tags should be legible and not easily erased, removed or defaced.

The use of suitable containers is one of the largest single factors among the preventable causes of claims and presents probably the broadest field in which the shipper may lend his co-operation in this campaign. Frail containers are chronic claim producers. Sturdy containers are claim preventers. The word "container" is used in a dual sense to include the completed package and the units of which the package is composed; as in the case of a box containing honey in metal friction top cans and a box containing comb honey in frames; boxes and cans are uniformly called "containers." Experience teaches us that honey in frames and honey in cans require different standards of containers to resist the shocks of transportation, and it takes very little imagination to arrive at such a conclusion. The same is true of all other commodities. What is good enough for one is insufficient for others, and while there are specified rules covering standards of containers for specific commodities, the question of what is a good container in the sense that it will amply protect and carry the shipment, is often dependent on the good judgment of the shipper alone. Bags, barrels, crates, cans, boxes, etc., must be adapted to the class of freight they are used to protect and transport, and should be of sufficient strength in every case to preclude the possibility of loss or damage by any cause short of unfair handling.

Economy in material for containers often turns into waste of contents at the expense of all concerned. Good

containers mean less claims, better service and satisfied patrons and customers. The most universally used material for containers is wood, and the subject of wooden box construction is susceptible of very careful study. The Forest Products Laboratory of the United States Forest Service at Madison, Wis., has some interesting data on box construction tending to prove the possibility of better boxes at less expense. It is understood that shippers and others interested may secure valuable information on the subject by addressing the laboratory.

It is said that a package of freight properly packed and marked and in a good container, is half way to destination even before it leaves the shipper's possession. Too much emphasis cannot be placed on the three essential factors in the preparation of freight-packing, marking and containers.

With these three at 100 per cent, the railroad employee should be on his mettle to do his part in completing a good job and getting the shipment to destination and into the hands of the consignee in full and in good order. This is the ideal situation we are striving for, and while we may not always hit the mark, it is earnestly hoped that with co-operation between the shipping public and the carriers' employees, and with the exchange of ideas and the general awakening of the claim prevention spirit in everyone, we may come mighty close to our expectations.

Chicago, May 13, 1921.

### UNWISE LAW MAKING

By Allen Latham

On page 176 of the American Bee Journal we read that Pennsylvania has passed a law making it unlawful, after July 1, 1925, to keep bees in other than hives having movable combs. It may be unwise upon the part of the writer to call such law-making unwise, but such law-making is to my mind foolish, and I am going to state my reasons for my belief.

In the first place, it is human nature to rebel against a "thou shalt not." There are times, to be sure, when a prohibitive legislation is the only cure for an evil. Such a case is that of prohibiting the liquor traffic. Personally I believe that everyone should have the right to sell liquor if he wishes, and that it should hold a place on the shelves of stores like any other commodity. But, unfortunately, there are many people who abuse the use of alcohol, and for the good of all, we are obliged to prohibit.

In the case of keeping bees otherwise than in movable-comb hives, I think some remedy can be found much better than a prohibitive law. I shall discuss this point later.

In the second place, all prohibitive laws fail of being effective unless backed up by penalties and law enforcement. Pennsylvania may pass the law, but what of it? That law will stand on the statutes of Penn-

sylvania like many laws upon the statutes of Connecticut, dead and forgotten a few years after its enactment. The game is not worth the candle, and the law will die a natural death.

In the third place, what is the good, even if the law could be enforced? It is the hope of those who got the law passed that through its means bee-disease may be brought under control. Let us consider the pros and cons of this for a few minutes. It is true that in the hands of skillful people the modern beehive is a great aid to checking bee disease. A well-kept hive with its straight slabs of combs, each easily taken from the hive, offers a minimum of trouble to a bee inspector, and he goes through the apiary with such hives in a very short time. It would take much longer to go through an apiary of box-hives and reach as satisfactory a conclusion.

Right here comes the trouble. Few beekeepers are skillful. To one who is skillful there are not less than ten or so who are not. How about their movable (?) comb hives? To enlighten those who have not done inspection I will cite a few cases. These cases are not made up, but actually taken from my own experience.

Case No. 1.—This hive was of the eight-frame type. Four of the frames on one side had brood, four on the other had honey. Between the two sets of four was the division-board. Both sides were bound on the so-called division-board and to the hive walls.

Case No. 2.—This hive had the regulation eight frames, but apparently the person who had hived the swarm was nervous, for the frames, mostly of the non-spaced variety, were shoved to one side at one end and unevenly spaced at the other. Combs were built in letter s's, and to the cover of the hive.

Case No. 3.—This hive had all the frames and they were spaced, but not even starters of foundation were used, and so the combs were built in such manner that some of them occupied four frames.

Case No. 4.—This hive had but four frames, and the owner was a just man. He had averaged those four frames so that each part of the hive had its share. Something doing when I pulled off the cover.

Case No. 5.—The owner of this hive either did not have any frames or else forgot to put them in. Not so bad, after all, for when the hive was lifted all the combs were easily reached from beneath.

Case No. 6.—This enlightened owner had a fully equipped hive with full sheets of foundation. The foundation was not properly fastened and hence the combs were a variety of marcel waves, graceful to look upon if you can get them out.

Cases innumerable in which all the combs were so irregular that not one single frame could be removed without starting the honey to leaking.

Nor must we blame ignorant beekeepers for all this trouble. Twice



have I seen equipped hives sent, from those who professed to know what was correct, with foundation so improperly put in that the entire foundation was a waste of good beeswax. Only this spring I had occasion to be called by a wealthy woman to stock her hives with package bees. She had six hives ready for the bees. I had to put in about two hours of hard work undoing improper work and doing the work properly. She had hired a professional(?) supply dealer to put full sheets of foundation into her hives. In some, the sheets were not fastened in any manner to the top-bars. In others the sheets were fastened by drips of wax at the ends and in the middle. In some hives the wires were not imbedded at all, while in others they were caught here and there by melted wax. In none of the hives were the wires tight. Had I put the bees into those hives as I found them, there would not have been one hive in which an inspector could have easily removed the frames for inspection.

And Pennsylvania expects that, by forcing her beekeeping farmers to use movable-comb hives, they will attain movable combs.

And, after all, is the box-hive a menace? Is the movable-comb hive not more of a menace? When bees die in a box-hive the hive is usually left to stand unmolested. It may be robbed out, or it may not. Frequently, before it does any harm the wax-worms have put it beyond danger. When, however, bees die in a movable-comb hive the owner will generally pull the hive to pieces. He will either toss the combs about or will lay them helter-skelter on the adjacent stone wall. I put it up to Pennsylvania law-makers whether such a hive is not more dangerous to the beekeeping industry than the unmolested box-hive.

Owners of frame-hives are quite likely to get their bees to robbing and, if any disease is present, the disease is spread and the menace increased ten-fold. Owners of box-hives seldom get their bees to robbing, and disease may exist for a long time without becoming dangerous.

I say without fear of any argument that can be brought forward, that the box-hive bugaboo is seen through a microscope. Look at a louse through a microscope and see what a horrible thing it is. As with lice, so with box-hives; keep them off your own premises, but let your neighbor tolerate them if he will.

The trouble in this whole matter lies in the method of procedure. Pennsylvania has gone "Dutch." Prohibitive legislation is not what is needed. Education is what is needed. Teach the value of the frame-hive. Teach how to make use of this value. Teach that unless the frame-hive is treated as a frame-hive its value ceases. Most people can be approached from the money point of view. If the dullest person is shown that he can make more money by this thing than by that, he will adopt the money-making scheme. Let Pennsylvania spend as much money in educational activity

as it will have to spend in carrying out its absurd prohibitive laws and the end sought will be achieved much sooner.

I realize that many of my readers will be surprised at the side I have taken in this matter, and because they have set their hearts upon the eradication of the box-hive, will disagree with me decidedly. I am right, however, and the sooner the friends of beekeeping are brought to realize that it is only through education that we shall ever clean this country of bee diseases, the more quickly shall we reach that distant goal.

Connecticut.

### SMALL AND LARGE HIVES

By V. Dumas

Much has been said upon the above question. But in giving the following personal observations, my aim is to draw the attention of the reader upon a neglected point. I hold that the value of observations reported is not only depending upon the knowledge of the man who made them, but also upon the number, comparison, frequency and generality of those observations.

Not all the methods of appreciation are logical. We see a beginner buy a style of hive; during a few seasons he has no crop; then he changes the style and suddenly he secures an immense crop of honey. Does that prove that the first style used was inferior? He may have had poor seasons at first, with a better honey period later.

Another man buys a large hive and puts a fine swarm in it. While his other colonies harvest a good crop, this one may make barely enough to live. Does this prove anything against the hive? Perhaps it had a poor queen, or she may have been superseded at the wrong time, for such a supersedure at the time of the crop may endanger the result.

Many similar accidents may happen to the novice, and even to the experienced beekeeper, and influence them in their judgment. We must not forget, therefore, that all incidents and observations must accompany our statements, if we wish to give the reader an occasion to pass judgment upon the comparisons.

With this point in mind, I wish to exhibit the conclusions drawn by me from a practice of ten year, bearing upon the annual experience of keeping some 250 colonies in hives of different models and sizes; besides the observations furnished by the transfer of a large number of colonies, from buildings or trees into hives.

My home apiary was composed of 104 colonies divided as follows:

A—70 Dadant-Modified or Dadant-Blatt hives, 12 frames, inside length 16 1/4 inches, inside height 10 1/2 inches.

B—2 Dadant-Modified, Long Idea hives, 28 frames, inside length 16 1/4 inches, inside height 10 1/2 inches.

C—8 small hives, 10 frames, inside length 9 1/2 inches, inside height 14 inches.

D—2 small hives, combs across entrance, 18 frames, inside length 9 1/2

inches, inside height 14 inches.

E—6 Box-hives, 8 combs, inside length 7 7/8 inches, inside height 24 inches.

F—16 De Layens Long Idea hives, 18 to 24 frames, inside length 12 1/2 inches, inside height 14 1/4 inches.

These varied styles, though inconvenient side by side, have supplied me with the following evidence:

A is the best hive for extracted honey production. C is the best for wintering weak colonies. E furnishes the greatest number of natural swarms. F has inconveniences which overbalance its good qualities. D offers no advantages whatsoever. B might be advantageous in a large apiary for the rearing of queens, as it would supply, at the beekeeper's choice, either combs of honey or combs of brood.

In France, the shallow frames are not desirable for wintering. I have, however, ascertained that this is the case only with weak colonies. I have also noted, in the Dadant hives, some 30 desertions, in spring, with no other cause than the weakness of the colonies, which were unable to keep warm on ill-supplied large frames. This might have been avoided, for one should not allow colonies to become weak. But I have never seen desertions in the styles C, D and E, however weak the colonies may have been. This is an aside of beekeeping which might be avoided.

It is evident to me that, on the whole, the 12-frame Dadant hive is most desirable. The fault found with it in England is probably the result of a lack of comparative experience. This fault is undoubtedly applicable to the Long-Idea Dadant or DeLayens hives, as there is too much room, and the queen may extend her laying in an undesirable way, when her laying should be reduced. I had one of those hives, supplied with full combs in its entire length, to furnish 14 combs of brood in August; so that when I transferred the bees into an ordinary 12-frame hive, I had to put on a super to contain the immense population of that colony. At that date, not one of my small colonies had swarmed, though well supplied with bees. Their crop averaged only 33 pounds, while most of the large hives yielded an average of 88 pounds. Yet, at the opening of spring these small hives had seemed to be in better shape than the larger ones. Independently of all other causes, the size of the combs and their number have the greatest influence upon the honey production.

I consider those large frame hive colonies as the best balanced, keeping a middle road between the hives that are too small and cannot produce enough bees, and those that are too large and wear themselves out by raising too many bees when they should be filling with honey.

Toulouse, France.

Arizona had 28,174 colonies of bees in 1919, as against 23,770 in 1909, and the honey crop for 1919 was 926,621 pounds, or a per colony average of 33 pounds.



### THE C. C. MILLER FUND

I have your letter asking my opinion about continuing the time for subscriptions for the Miller Memorial Fund. I am very much in favor of going on with this for some time, and can best explain my reasons for this by telling you what I think should be done with this fund. The amount so far subscribed is inadequate to establish a memorial fitting to a man like Doctor Miller, and I know of few things that can be done for beekeeping that will do more than a real working establishment to perpetuate the memory of this great beekeeper.

What I hope for is this: The first choice would be a fellowship or scholarship for research in beekeeping in some great university, but as we will probably not be able to get funds for that, the second choice would be to found a library of beekeeping literature in some university in which could be gathered together the literature of the world on beekeeping. We have no such library at present in America. Such a library could be founded at first by contributions from authors and editors of practically all the present literature, and the income from the principal would be used every year to buy current books and journals and to buy up complete files of the various journals, reprints of scientific articles on beekeeping and the older books on the subject. Even if not to exceed \$100 annually were available, this would in time probably make this the greatest library of the kind in the world, and, of course, the larger the fund the better the library would be. I am in favor of placing the fund with some trust company for investment, so that for all time the money would be working for the betterment of beekeeping, for I know that such a memorial would better please Dr. Miller than a transient thing like a monument. His constant aim was to help his fellow beekeepers, and no memorial which does not do that will fit the character of the man whom we take pleasure in honoring.

The amount of money now at hand is scarcely one-fourth enough for the smallest library, but I feel sure that this amount is not all that you will receive. If the subject can be brought to the attention of the beekeepers at the various associations, large contributions will be forthcoming. Furthermore, I feel certain that there are still many who want to contribute who have merely overlooked it. Those who have profited financially because of the beekeeping work of Doctor Miller are myriad, and there is the still larger group of beekeepers who are better men and women because of the life of the man, and they will want to have a part, even though it be a small one, in this movement.

It will probably help materially if the beekeepers can be assured that, if possible, the fund will be invested in some way which will be a benefit to the beekeeping industry. The committee having this in charge has, up to the present, not been able to announce what would be done, because of the uncertainty of the amount that

would be available, and even at this time it is impracticable to make a definite statement. I feel sure, however, that if we can promise that the money will be used in some way that will be a perpetual benefit, many contributions will be increased and later contributions will be much more numerous. I, for one, am anxious for the kind of memorial which I have here outlined, and shall use my influence to this end. I shall be willing to agree to whatever is the most practical, provided that the most useful thing can be decided upon. Of course, I am only one of five on the committee, and am not attempting to dictate the policy, but am merely stating my personal beliefs and preferences in the matter.

Subscriptions to the fund are being requested by foreign bee journals, one as far away as South Africa, and if beekeepers of other lands are anxious to honor the memory of Doctor Miller, then it seems to me that those of us who were nearer to him should do our level best to make this worth while. In view of these circumstances, I look for a considerable increase in the fund soon.

Sincerely yours,  
E. F. Phillips.

### SHOULD EVERY FARMER KEEP BEES?

By T. C. Johnson

I read the article on page 234 of the June American Bee Journal, by J. H. Tichenor. I was a farmer myself when I started to keep bees, and I hived my first swarm in a nail keg; but I was not long getting in touch with some one that knew more about bees than I did. I got on the right track and subscribed for a good bee journal and also bought some good bee books. A soap box and a nail keg won't do for me—nothing but a movable-frame hive and combs built from full sheets of comb foundation.

If every farmer would do as I did, or better, I would feel just like Mr. J. H. Tichenor does, I would say yes, every farmer should keep bees. I have helped a lot of my neighbors to get started right and I am not afraid to help others, with the fear that they will put me out of business or flood the market with honey. I have inspected bees in Indiana for over three years and I know that the State is spending thousands of dollars to get rid of disease, and the biggest help to get rid of it is to get rid of the cross-comb hives. I find farmers, every day, who are hiving bees in anything that has a hole in it; all the way from drain tiles to cider barrels. I even saw one farmer trying to hive a swarm in a lard can, but the sides were so smooth that the bees could not stick, which was a good thing. Now if Mr. Tichenor had explained what a farmer should do to keep bees in the right way and what the law requires in that line, I would have said Amen to his article. But unless we get rid of the box hive or old gum, as most farmers call it, we will never get rid of foulbrood. If bees are

worth keeping they are worth keeping right. I have met farmers who had everything on the farm that was needed to run it, and a big automobile to go pleasure riding, but their bees were in old boxes with old dirty sections on top with mice, roaches, and most anything else. When told to get new hives, they cannot afford it. It would simply be throwing money away to pay \$1 per pound for foundation, when, if used properly, it would make \$5 for \$1. There are but very few places on the farm where a man can spend \$1 and get back \$5 in return, saying nothing about the benefit the bees are to his fruit and plants.

Indiana.

### SALT FOR BEES

By Harold L. Kelly

In reference to recent articles appearing in the American Bee Journal in regard to bees liking salt, I would like to cite an experience at my apiary.

A neighbor inquired if bees liked salt, stating that a portion of the garden had been sprinkled with salt to kill weeds, and that the ground was thick with bees.

Upon investigating, I found conditions as stated by my neighbor. The entire garden was still wet from recent rains, but the bees were only on the patch that had been salted.

It was not necessary for them to come to this particular spot for water alone, as there is a stream not three hundred feet from the apiary from which they have always obtained water.

To satisfy myself as to whether they liked salt, I placed in the yard a pan of wet sand in which two handfuls of salt had been sprinkled. It was frequented by the bees until it dried out.

I notice that when getting water at the stream, they work on the wet sands, and not at the water's edge. Is it not possible that they get salts that wash from the earth and settle in the sands, that could not be had if they took water direct from the stream?

Maryland.

### BOILED HONEY FOR CAGES

By D. T. Glaster

Boiling honey to make candy for mailing queens is no bad thing. It should be boiled in a double boiler with but little water, and boiled until all the water is boiled out and until the honey is thick with a heavy body, and then you can get more of it in the candy and the candy will not dry out or get too soft. Otherwise in a damp time it will get soft and stick up the bees, and in a dry time it will get hard and dry and let the bees starve. I have been using boiled honey ever since the postoffice department required it. The first two or three years I had some trouble with it until I boiled it until it becomes thick, and the thicker the better.

North Carolina.

## THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

### Selling Queens

Suppose I have been rearing queens of fine quality for my own apiary and would like to sell the queens by advertising, what are the requirements of the law which I have to observe in selling and shipping queens?

ILLINOIS.

Answer.—The requirements for this State are that you should have your apiary inspected, to make sure that you have no foulbrood. A. L. Kildow, Putnam, Ill., is the Chief Inspector just now. He will either send a deputy or come himself, and it will cost you nothing.

In addition, if you use honey to make the candy for the shipping cages, you should boil that honey for a half hour, and a certificate to that effect must be put upon the cage containing the bees. This, with a certificate that your apiary has been inspected, will be sufficient, we believe, to enable you to send queens anywhere. Such certificates are printed on address tags for mailing purposes.

### Royal Jelly

I would like to know where royal jelly can be found in a beehive.

WISCONSIN.

Answer.—In every cell that has young larvae or "worms" of the bees less than 3 days old. Buy some text book and read it. You cannot keep bees successfully unless you are posted.

### Honey Vinegar—Sweet Clover

1. Would you please advise me the proportion of honey and water to use, or give me the formula to make vinegar out of honey?

2. I will also be in the market for some annual sweet clover, but think it's too late to plant it this spring, and would like to know if I can plant it in the fall, like you do alfalfa.

MISSOURI.

Answers.—1. About a pound and a half of honey, with enough water to make a gallon of liquid, the honey had best be heated first, to kill all germs. Then add to the liquid a little yeast. Fruit juice is as good as the best yeast. The liquid should be just warm when the ferment is added. Keep the solution at a suitable degree of heat to sustain fermentation, anywhere between 70 and 100 degrees.

Alcohol fermentation takes place first, but if the air is not excluded, the acetic or vinegar fermentation soon sets in. The more air you give, the quicker will be the change.

2. Annual sweet clover has been very high in price, about \$1 an ounce. As many people are cultivating it, it will probably be much cheaper next spring. Sow it early, about the time when oats are sowed.

### Races Compared—Requeening

1. Compare the goldens and three-banded Italian and Cyprian bees in regard to resistance to European foulbrood.

2. In Langstroth on the Honeybee, revised by Dadant, is not Dr. Miller quoted as saying he always left requeening to the bees? Is this a fact?

KANSAS.

Answers.—1. I do not know for certain, for we have not had any Cyprian bees for years, but I believe either of those three varieties would be equally resistant to European foulbrood. However, it is best to be on the lookout and treat the bees promptly when disease is found.

2. No, but I don't believe Dr. Miller ever

practiced requeening, except in cases where the queen was inferior. I have just looked through his "Fifty Years" and cannot find any mention of it. However, it is a good plan to requeen when the queen is fully two years old. Queens of less than a year will lay less drone eggs than older ones.

### Entrance—Foulbrood

1. How wide should the entrance be on a hive when wintering bees in the cellar?

2. Would it be safe to use frames for extracting honey when the frames have been used for the same, but the frames in the brood-chamber have had foulbrood, that is put them on when a good honey flow is on?

3. Would it be a good plan to paint a hive inside, where foulbrood has been?

WISCONSIN.

Answers.—1. Have the entrance as wide as possible. We even raise the hive a little from the bottom-board, so they may have plenty of air.

2. No, don't use any combs, or frames, or hives that have foulbrood. Melt up the combs, scald the frames, singe the hives. You cannot be too careful. Most people boil the frames in lye water for half an hour.

3. It is a good plan to paint the hive inside. But a still better plan is to singe it with a blow torch such as tinners use. If you know of a tinner you may be able to borrow his blow torch. If not, buy one.

### Extracting Granulated Honey

Please tell me how to extract granulated honey from super extracting frames. I put my supers back on the hives last fall, after extracting, for the bees to clean and repair; the honey was very thick; it was about impossible to extract it, and the comb was left very ragged. This was after heavy killing frosts, and I thought no more honey could be stored; but I found some of the frames nicely filled, capped and granulated.

I have read somewhere that if a super of granulated honey be put below the brood-chamber that the bees will transfer the honey to super above. If I do this, should I make an opening in super for the bees to go in and out from the alighting board?

I am of the opinion that my best plan is to cut the honey out of frames and extract it over the fire, and rewire and put new foundation in.

MONTANA.

Answer.—If the honey is of a soft granulation, the bees will use it whenever they cannot find honey in the fields, but if it is of coarse granulation some of it may be lost in sucking it, as sometimes it gets so hard that they throw it away.

You may put the super below the alighting board, but it would be better to put it just immediately below the brood-chamber and on top of the alighting board. If your honey crop is on, you had best delay this until a time when they will be willing to take the honey, say after a rainy day or two.

Perhaps it will be as economical to heat the honey and melt it as you propose. But honey which has been heated hot enough to melt the comb usually loses some of its quality.

### Increase

I wish to run my bees this season for increase without detriment to honey-storing. Would the following plan be all right:

One frame with queen and nine full sheets of

foundation below, queen excluder on, with two supers on and rest of brood on top of all; then, when they are well started below, take off the top brood to another stand and introduce queen. Or, if they raise queen-cells in upper brood-chamber, could cut out to one? I use 10-frame Danzenbaker hives.

VIRGINIA.

Answer.—1. I don't believe we can count on making increase without detriment to honey storing, unless we make the increase when there is no longer any need of increase in the number of workers, or, in other words, unless the swarm thus made comes when it is too late for the first crop and may be produced in time to secure the winter stores from a second crop. All this depends upon the season and the locality. If you manage to have two colonies, instead of one, for a late crop, you may even harvest more honey, upon the whole, than if you had kept the colony single.

So the thing to do is to figure out, from your locality conditions, at what time the first crop is to end and the second crop to begin, and act accordingly. But, as a rule, increase in colonies decreases the possibilities of honey storage, for we cannot eat our cake and have it left.

### Drone Layer

I have a large colony of bees which shows raised sealed cells in plenty. Does this not designate laying worker bees? Am unable to find a queen. The colony is very strong.

WISCONSIN.

Answer.—If those raised sealed cells are laid close together in a regular way, then it may be a young unmated queen that is laying. But if they are irregular, here and there, your surmise is probably correct and there may be a lot of drone-laying workers. At any rate, this colony is worthless until you give it a fertile queen. It will probably weaken down to a small number of bees soon, as there are no worker bees hatching. They get old fast, when spring opens.

### Robbing, Increase, Etc.

1. How can one stop robbing after it has begun in an apiary?

2. Can a queen be introduced successfully on a couple of frames of brood in the top story of a 2-story hive, if the two hive bodies are separated by a queen excluder?

I would like to introduce a queen in this manner and then divide the colony after the top story is filled with brood. I intend to leave the old queen in the bottom story.

3. How does Nebraska compare with other States in honey production? NEBRASKA.

Answers.—1. There are many ways to stop robbing, none is always successful. The best way, if you can find the robbing colony, is to substitute it for the robbed colony, exchanging their locations for one another. You may also put the robbed colony in the cellar for 2 or 3 days. That does not always succeed. If you can notice when robbing begins, you may often be able to stop it by throwing loose grass on the entrance of the robbed colony, so that the robbers have some difficulty in getting through. The bees of the robbed colony station themselves in this grass and grab them as they try to enter. But the very best way is to prevent robbing from beginning by keeping strong colonies and exposing no sweets where bees can be spoiled by getting a chance to rob.

2. I never tried this. It may succeed, but I would much prefer to make the division at the time when the queen is introduced.

3. Nebraska is like most all other States. There are excellent spots and poor ones.

### Queen Rearing

1. I have started in beekeeping with the 10-frame hive and am thinking of changing to the 12-frame size, as a swarm preventative. I have



20 of the 10-frame size and don't think I will ever keep over 50. Now, would you change hives, or would you adopt the Demaree plan for swarm prevention?

2. The Demaree plan, when you unite the 2 hives, is it necessary to put paper between, or will they unite peaceably without it?

3. I am going to raise some queens this summer and had intended to adopt the C. C. Miller plan, but since our State bee specialist tells me that it is better to raise them by the Doolittle plan, and to do it in a queen-right colony, I am undecided. Would like to have your opinion about it. Which do you think would be better, raised in a queen-right, or a queenless colony? I am not going to raise them for sale, so you see I will only need a few, but want the best that it is possible for me to raise.

4. I have Langstroth the Honey Bee, revised by Dadant, and Practical Queen Rearing, by Frank C. Pellett. Langstroth says in transferring larvae to put in cocoon and larvae together. Pellett says to transfer with toothpick or grafting tool. What I want to know is, is it necessary to put the cocoon in the artificial cell?

5. In putting in royal jelly, is it all right to put the jelly in on top of larva, or should the cells be put in first and larva next?

#### MISSISSIPPI.

Answers.—1. In order to prevent swarming there are several requirements. So the changing of colonies from 10-frame to 12-frame hives is only a very small part of the needs. You had better use the Demaree system, which will probably fill your needs best, and cost you less since there will be no additional investment.

2. With the Demaree plan, such as given on page 182 of the May number, there is no uniting of two colonies. But if you should divide the two stories and wanted to put the bees together again later, it would be best to use the newspaper system.

3. The Doolittle plan is a little more labor, but it loses less time for the bees. Both plans are good if you see to it that the colony which is rearing queens has brood from the very best queen and is well supplied with honey and bees.

4. The Langstroth way is that given by Pridden in "Advanced Bee Culture" and quoted; the Pellett way of transferring the larva with a toothpick is nearer to Doolittle's way. Either way is good. One way may please you better than the other.

5. Put the jelly in first and the larva on top. That is the way you will see it in naturally built queen-cells. However, the bees evidently place the jelly on the side of the little grub and the latter glides down upon it.

## ODDS AND ENDS

### Apples and Peaches in the U. S.

A significant report is that of the census covering the apple and peach crop of the United States. Apples produced in 1909 totaled 145 million bushels, as against 156 million bushels in 1919. Peaches produced in 1909 were 35 million bushels, and 51 million bushels in 1919.

The most remarkable part of the report, however, covers the decreases in number of trees of each kind of fruit, there being 115 million apple trees, as compared with 151 million in 1910. Peach trees 65 million, as against 104 million in 1910.

There is as great a contrast in number of trees not of bearing age, there being 36 million apple trees, as against 65 million in 1910. There were also 21 million peach trees not bearing yet in 1919, compared to 42 million in 1910.

If this indicates anything, it indi-

cates that there is not now that feverish desire for heavy orchard planting so apparent ten years ago. Should this reach a point where fruit becomes more scarce, it would tend to mean better markets for honey.

The better methods of handling and caring for trees, however, will mean a relatively larger per tree production, which will, in part, offset the shortage in plantings.

### Short Crop of Maple Sugar and Syrup

Fewer maple trees were tapped last spring than in any one of the last five years, and only about half as much sugar was made as during any of the preceding four years, and about three-fifths as much syrup, owing to the unfavorable weather, says the Bureau of Crop Estimates, United States Department of Agriculture.

The average producer's price of maple sugar in the middle of April was 25.7 cents per pound, compared with 37 cents in the same month in 1920, and 26.9 cents in 1919, although above the 22.5 cents of 1918 and 16.3 cents of 1917. Maple syrup had the average price of \$2.21 per gallon in April, above which was the price of \$2.92 in 1920 and below which were the prices of the preceding three years.—U. S. Weekly Crop Letter.

### Beekeeping at Colorado Agricultural College

With the coming of vocational men to the Colorado Agricultural College and the increase in price and demand for honey, there came a request to reinstall the course of beekeeping, after a fifteen-year absence from the curriculum. A two-year course in combination with poultry raising, small fruits or gardening is offered, and the general course on beekeeping touches the various phases of organization, anatomy, physiology and activities of honeybees, together with diseases and enemies of bees, management of the apiary and production of honey. The Federal Vocational Board has let a contract amounting to \$1,500 for bee equipment, which includes the modern apparatus and 25 colonies of bees.

### Mississippi Bees

Bees in Mississippi have increased from 74,350 colonies in 1909 to 82,770 colonies in 1919. The production for 1919 was 731,630 pounds, or a per colony production of 9 pounds.

### Cleaning Excluders

For several years I have cleaned wood and wire excluders of wax by use of a sharp-pointed knife. It is slow. I brought home a lot of excluders and placed what would go in my wax boiler, with wooden slats below, so excluders did not touch the water; covered them, and with a pail of water in boiler soon had the live steam cleaning them like new in a few moments. It does not damage the wood with a few moments of steam, and cleans them so much better, as well as faster.

N. E. France.

### Wild Honey.

"Wild honey is as near like tame as wild bees are like their brothers in the hive. The only difference is that wild honey is flavored with your adventure, which makes it a little more delectable than the domestic article." —(John Burroughs, "An Idyl of the Honeybee.")

### Italy to Have New Customs Tariff

According to a cablegram dated June 13, from the American commercial attache at Rome, the new Italian customs tariff, increasing the import duties, has been approved and will become effective in the near future. Details, however, are not yet obtainable.

### Bees and Honey in California

Bees have decreased in California, there being 201,023 colonies, as against 180,719 colonies in 1909. The honey crop for 1919 was 5,501,738 pounds, or 30 pounds per colony.

### Misbranding, Etc.

There were pending before the Federal Trade Commission, on June 1, 412 complaints of all kinds. These include misbranding, false advertising, etc. The subjects range from oil stock to toilet preparations and razors. Fortunately, none of those mentioned has to do with honey.

### Beekeeping in India

Beekeeping, as an industry, is unknown in the plains of northern India, but nevertheless honey is collected in quantities and sold in the villages of the hill country.

The poor villagers who live in jungles dig out shallow spaces in the mud walls of their huts and whitewash these spaces, later closing up the spaces except for a small entrance through the mud. It is not at all unusual for these spaces soon to be occupied by the wild bees. Nobody ever cares to bring bees to any particular hut or space provided for them. Apparently it is not necessary, as the bees appear to find them soon.

When the natives wish to gather honey they burn a combination of wood chips and cow dung to drive the bees out of the spaces in the hut walls and remove the whole of the comb. Instead of using a veil for this process, the man keeps covered with a blanket, provided with suitable holes for seeing. The bees are either destroyed entirely or left to shift for themselves, and thus the "goose" is killed for her "golden egg."

In the plains no one ever cares for the bees, although they may often be seen in clusters hanging from the branches of roadside trees and projections of the walls of houses. When shown a catalog of beekeepers' supplies, everyone was surprised to hear that it is possible to keep bees and to make them produce honey on a scale fit to be called an industry.—(Gange Pershad, India). KH.

### More Census Reports

Louisiana had 31,079 colonies of bees in 1919, as against 29,591 in 1909. The honey per colony average for 1919 was approximately 8 pounds,

or a total of 247,513 pounds.

In Minnesota the per colony average is 19 pounds, with a total of 1,251,102 pounds from 67,344 colonies. The number of colonies in 1909 was 56,677.

#### New Mexico Census Report

New Mexico is reported to have 15,733 colonies of bees, as against 10,052 colonies in 1909. The honey crop for 1919 was 593,290 pounds, or 37 pounds per colony.

#### Bulletin on Sweet Clover

Bulletin No. 233 of the University of Illinois Agricultural Experiment Station has for its subject "Sweet Clover for Nitrate Production."

These tests were carried on on different type soils in five different sections of Illinois. Results were very conclusive, showing the very great value of sweet clover as a nitrate producer, it being much superior to heavy manure, which was also tried in the tests.

Characteristics which make sweet clover especially valuable as a green manure crop are:

1. Adaptability to a wide variation of climatic and soil conditions, provided the soil is not too acid and inoculation is provided.
2. Hardiness to cold and drought, and resistance to diseases and weeds.
3. Production of a large tonnage per acre at a time when it can best be used for soil enrichment.
4. Rapid decomposition in green condition.
5. Its deep rooting habit, which enables it to assist in rendering impervious subsoils more porous and to feed at a greater depth.
6. Ability to obtain food from insoluble minerals more readily than any other crop.

#### North Carolina and Arkansas Bees

Arkansas has 112,425 colonies of bees, as against 92,731 in 1910. The honey crop for 1919 was 791,598 pounds, or 7 pounds per colony.

In North Carolina bees have decreased from 189,178 colonies in 1910 to 163,956 in 1919. The honey crop for 1919 was 1,341,002 pounds.

#### League Notes

By H. B. Parks

The past month has been one of great activity in the League. Prof. H. F. Wilson, Chairman of the Schedule Committee, has been able to make a tentative grouping of the State meetings with reference to dates of meetings. He has divided the States into fourteen divisions, each division of which can be visited by speakers without loss of time or distance in travel. The schedule will be printed when finished.

O. E. Timm, Secretary of the Nebraska Honey Producers' Association, has completed the affiliation of his organization with the League. C. E. Carhart, C. F. Strahan, H. Thaden, H. C. Cook, C. A. Eiker and Thos. Atkins are the moving force in this up-to-the-minute organization.

George W. York, of Spokane, re-

ports that the Washington State Beekeepers' Association, instructed their Secretary, Mr. Starkey, to complete the affiliation of that body with the League. This action is the result of the good work done for the League by Geo. W. York, J. B. Ramage and Dr. A. L. Melander. This association is not large, but it knows the value of organization.

H. L. McMurry, of Madison, Wis., Chairman of the committee to co-operate with the National Horticultural Society in its tree planting campaign, has made arrangements with that body to have nectar-yielding trees planted wherever this is practical. He asks that you send him the names of trees that are of value as honey plants and at the same time are suitable as permanent shade trees. As these trees are to be planted in every State in the Union, a large number of varieties will be used. Send Mr. McMurry the names of the trees suitable for your locality.

Dr. E. F. Phillips reports that some investigations have been made on the subject of the use of honey in candy, and the finding will be published soon.

C. B. Baxter, Chairman of the Equipment Committee, gives the following as his Committeemen and Advisory Board: A. V. Small, C. F. Muth, W. B. Dickenson, M. G. Dandant, C. A. Schirm, K. Hawkins, A. L. Boyden, F. W. Redfield and A. G. Woodman.

Missourians may have to be shown, but when shown they know how to act. The first response to the appeal for individual membership was from the Leahy Co., of Missouri.

Frank Rauchfuss, manager of the Colorado Honey Producers' Association, has sent in the dues for that Association. This is the first Association to affiliate on the \$1 per member basis. The Colorado beekeepers never do things by halves. Mr. Rauchfuss was one of the group of men who organized the League in 1920.

When you were in the bank yesterday, you remember reading a little brass sign that stated that a certain company would pay \$100 for any information relative to theft occurring in this bank. If you had asked the banker about that sign he would have told you that a burglar thinks twice when he sees that sign, for he never knows how badly some of his pals need that \$100. He also tells you that it costs him a nice round sum to place that sign at his teller's window.

The American Honey Producers' League is doing the same thing for its members, and it costs you nothing excepting the cost of the signs. These are worded as follows:

#### NOTICE

\$100 reward will be paid for information leading to the arrest and conviction of any person molesting this apiary in any way whatsoever.

Member.

American Honey Producers' League.

H. B. Parks, Secretary.

E. G. LeSturgeon, President.

The beekeeper will place his name

on the blank line as a member of, and agent for the League. Where conviction is secured the member submits proofs to, and draws on the League for the reward money.

They will cost you 10c each, delivered. They are printed on heavy cardboard and are 12x18 inches. These will last for years.

The idea is that of O. L. Hershisier, Legal Advisor of the League. The cards can be obtained from the Secretary, H. B. Parks, Box 830, San Antonio, Texas.

#### Southern California Short

I was much interested in your article summing up the expense of producing honey in June American Bee Journal. It begins to look like the beekeepers are going to figure on what honey is costing to produce. And many will find a cost of over 10 cents per pound.

Our prospects are not at all good. Orange is one of our shortest crops this year. Not to exceed 10 pounds per colony on total number brought to groves. Bees on sage made a living to date in most places. May broke all records for rain, and it is a question just how much good it will do the beekeepers. In some sections much more than others.

L. L. Andrews.

#### A Texas Bulletin

Bulletin No. 272 of the Division of Chemistry of the Texas Agricultural Experiment Station has for its title "The Chemical Composition of Texas Honeys and Pecans." It is written by G. S. Fraps and comprises 12 pages.

Six samples of pecans, both meat and shells, were examined, and 18 different samples of honey.

The honey samples contained from 16 to 21 per cent of water, horsemint having the largest water content. The samples varied in reducing sugar content from 71 per cent for huckleberry to 79 per cent for cotton and catclaw honeys. The percentage of variation between different kinds of honey was not large in either case.

Mr. Fraps' analyses do not differ greatly from those of Mr. Brown in Bulletin 110 of the U. S. Department of Agriculture, in which 91 samples were examined.

The analyses of the pecan samples show a fat content for the meats of 69 to 74 per cent, and the protein content varied from 8 to 12 per cent.

Both products are shown to be of high food value.

#### Bee Hunting in the Old Days

"One looks upon the woods with a new interest when he suspects they hold a colony of bees. What a pleasing secret it is; a tree with a heart of comb-honey, a decayed oak or maple with a bit of Sicily or Mount Hymettus stowed away in its trunk or branches; secret chambers where lies hidden the wealth of ten thousand little freebooters, great nuggets and wedges of precious ore gathered with risk and labor from every field and wood about."—(John Burroughs, "An Idyl of the Honeybee.")



**AN ADVERTISING CAMPAIGN**

The national advertising campaign of the American Honey Producers' League will begin with the September issue of Good Housekeeping, a widely-distributed publication.

The advertising is in charge of the Proctor-Collier Company, of Cincinnati, and they have given their best efforts in preparing the campaign which is about to start, and it is up to the rest of us to keep it going.

The advertisement will cover a two-third page, illustrated by a beautiful, clean-cut sketch of a breakfast table with biscuits and honey. There is also being prepared a receipt book, which will be sent to all inquiries by the Secretary of the American Honey Producers' League. Furthermore, a pamphlet is being prepared explaining to the jobber or wholesale grocer the activities of the American Honey Producers' League and the National Advertising Campaign. This is done more or less to have the wholesale grocer stock honey for the coming demand which will be bound to follow if we all give our hearty support to the League.

Through the efforts of the Proctor-Collier Company there will be interesting articles on honey and bees in many daily newspapers, which will cover not only the large towns but many of the country papers. This will benefit the beekeepers by bringing the words "bees" and "honey" before everyone's eyes more often.

Pledge your support to the American Honey Producers' League—you need it and they want you.

C. F. Muth,  
Chairman Advertising Committee.

**SAVING QUEENLESS COLONIES**

By Nathan Martin

My method of saving the queenless stocks is as follows:

On April 7 a strong colony with a great mass of brood for the season was deprived of its queen, which was directly transferred to a queenless stock. No danger of introducing here, as every bee was mighty glad almost as soon as the queen was on the comb. This stock is now a strong colony,

fully prepared for the main honey flow.

The colony deprived of its queen was treated as follows:

April 19, all queen cells destroyed. April 28, four or five incipient queen cells in convenient places, on two combs, primed with larvæ of suitable age, taken from a colony desirable for breeding. Eleven days after, colony examined—one young virgin out and bees just trying to destroy the other three cells. One good cell was saved and directly transferred to the other queenless colony. (The queen was heard gnawing in the cell, so I felt sure it was O. K.) This other colony had been strengthened by combs of brood given to it, without which I think it would have succumbed to robber bees long ago. It was over 10 days before these two young queens commenced laying, but now their colonies have lots of sealed brood and are getting on fine, although much behind the regular colonies. To make these two colonies really worth while for this year's honey crop they will need an additional super of brood, and I trust there will be colonies that insist on swarming, as usual, and this is just the place for utilizing their surplus energy.

Ontario.

**REMEDY FOR BEE STING**

By S. H. Sabine

A short time ago I discovered, through the agency of a little child, the best bee sting remedy I have ever used. It is simply liquid blueing.

My little niece, while out playing one day, was stung on the hand by a wasp and she immediately ran into the house, where she got the blueing bottle and applied the wet cork to the sting on her hand and then went out to play again as if nothing had happened.

This may be known to many, but it was entirely new to me, and I have since used it successfully on bee stings. It relieves the pain almost at once, and prevents swelling and inflammation as nothing else that I have ever tried will.

Texas.

(That is another added to the hundreds of remedies for bee stings. The fact is that, if the poison has entered in very small quantity and one of those remedies is applied at once, it will help. But if the entire poison sack has been emptied into the wound and a little time has elapsed so that the very volatile venom has had time to diffuse itself in the blood, especially if it has struck a small vein or artery, the remedies are of but little avail. The above-named remedy is easy to apply and it will not hurt to give it a trial.—Editor.)

**Bees Poisoned**

Two apiaries owned by Frank Rasmussen, Greenville, Mich., and located in a commercial apple orchard here, have been completely destroyed by spray poison. The dust spray was used in this case. The trees were not dusted while in bloom, but the continued dry weather may have caused the dust to shift some. These apiaries had been in these orchards for a number of years, with no bad results.

Frank Rasmussen.

(This is exceedingly unfortunate. We do not see how it could happen, and your explanation is not sufficient to show. The general public should be informed, so as to avoid such accidents in future.—Editor.)

**TOO LATE TO CLASSIFY**

FOR SALE—1,000 colonies of bees located around Brawley, Calif., in the Imperial Valley, where crop failure is unknown. Portable Extracting outfit, two autos and one 1½-ton truck, storage tank, honey house and dwelling house. Bees in two-story 10-frame hives; no queen over one year old. This is a going concern and a money maker. If you want an outfit of this size and mean business, come look us over. Half cash, balance as you make it. Reason for selling, going to South America this fall. T., care American Bee Journal, Hamilton, Ill.

FOR SALE—Select queens, untested, \$1.15; 6 or more, \$1.10 each; select untested, \$1.60; 6 or more, \$1.50 each; safe arrival.

Hazel V. Bonkemeyer,  
Randleman, R. D. No. 2, N. C.

WANTED—A man who thoroughly understands the care of bees; a good job for the right party. References required. Address

R. T. Parker,  
69 Appleton Ave., Pittsfield, Mass.

**WANTED COMB HONEY WE ARE IN THE MARKET FOR 10 TO 20 CARLOADS**

Must be 4¼x4¼x1⅞ in Beeway sections

Describe the quality, grade and quantity and when you will have it ready for shipment

Will take less than carload lots, if fancy and well packed in carriers

Also extracted honey

**HOFFMAN & HAUCK, Inc., Woodhaven, N. Y.**

**CLASSIFIED DEPARTMENT**

Advertisements in this department will be inserted for 5 cents per word, with no discounts. No classified advertisements accepted for less than 35 cents. Count each initial or number as one word.

Copy for this department must reach us not later than the 20th of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

**BEEES AND QUEENS**

**FOR SALE**—20 colonies in 10-frame hives, \$10 per hive. Dr. T. A. Kragness, 6031 Wentworth Ave., Chicago, Ill.

**THAGARD'S ITALIAN QUEENS**—I am breeding from breeders obtained this spring from Italy. Untested, \$2 each; 12, \$18. Queens from my famous stock, untested, \$1.25 each; 12, \$11.50. V. R. Thagard, Greenville, Ala.

**FOR SALE**—Three-banded Italian queens, \$1.25 each; \$12 per dozen. Tested, \$2. Jul. Buegeler, New Ulm, Texas.

**FOR SALE**—400 stands clean bees, extracting equipment; good location; for reason write. The Oregon Apiary Co., Nyssa, Oregon.

**CARNIOLANS**—Gentle, prolific, wonderful honey gatherers. Descriptive circular free. Untested queens, \$1.50 each; \$17 per dozen. August is an excellent time to require. A. G. Hann, Glen Gardner, N. J.

**THREE-BAND AND GOLDEN QUEENS**—Reared in separate yards. Order from us and get pure stock for your summer and fall requeening. At our special price, beginning July 1, untested, \$1.25 each; 12, \$1.00 each; tested, \$2.00 each. We have a good number ready for shipment and will fill your order promptly. Dr. White Bee Co., Sandia, Texas.

**QUEENS ON APPROVAL**—If our \$1.50 and \$2.00 queens are not perfectly satisfactory, have them in the office for return mail and get your money back. Birdie M. Hartle, 924 Pleasant St., Reynoldsville, Pa.

**WE BELIEVE** we have the best Italian queens obtainable. Our new system is working wonders. Untested, \$1.25; tested, \$2.25; virgins, 50c. Am booking orders for 1922. F. M. Russell, Roxbury, Ohio.

**FOR SALE**—Three-banded Italian queens from best honey-gathering strain obtainable (no disease). Untested queens, \$1 each; 6, \$5; 12, \$9. Select untested, \$1.10 each; 6, \$5.75; 12, \$10. Safe arrival and satisfaction guaranteed. Your orders filled promptly. Alabama Bee Co., Rt. 1, Fort Deposit, Ala.

**FOR SALE**—Golden Italian queens, untested, \$1; 6 for \$5. Tested queens, \$2. J. F. Michael, Winchester, Ind.

**PROMPT SHIPMENT** of golden or 3-banded queens. Untested only. One, \$1.25; 6, \$7; 12, \$13. Safe arrival and satisfaction. Ross B. Scott, La Grange, Ind.

**FOR SALE**—Pure 3-banded Italian queens, reared from the best honey-producing mothers, mated to pure drones. Untested, each, \$1.25; 6, \$7; 12, \$13. Tested, each, \$2.50. H. N. Boley, Hillsboro, Iowa.

**SPECIAL**—Leather Italian queens, untested, 90c; two or more, 65c; select 25c higher. One, two and three-frame nuclei with select untested queens, \$3, \$4 and \$5. Booking orders for 1922 packages. Tupelo Honey Co., Columbia, Ala.

**SWARTS' GOLDEN QUEENS** produce golden bees of highest quality. Untested, \$1.50 each, 6 for \$8; tested, \$3. Satisfaction guaranteed. D. L. Swarts, Lancaster, O., Rt. 2.

**FOR SALE**—Three-banded Italian queens, untested, \$1.25 each; 6, \$7.50; 12, \$14. Tested queens, \$2.50 each; 6, \$15. The above queens are select stock. Safe arrival and satisfaction guaranteed. Rob't B. Spicer, Wharton, N. J.

**MY famous three-banded Italian queens**, \$1.50 each, 6 for \$8, after June 1.

J. W. Romberger, Apiarist, 8113 Locust St., St. Joseph, Mo.

**SIMMONS QUEENS**, bees and nuclei, goldens and three-band. Fairmount Apiary, Livingston, N. Y.

**HARDY ITALIAN QUEENS**, \$1 each. W. G. Lauver, Middletown, Pa.

**FOR SALE**—Unsurpassed Italian queens, ready June 1; untested, \$1.50; 6, \$7.50; 12, \$14; 50, \$55; 100, \$105. Tested, 1, \$2.50; 6, \$13.50. My queens are actually laying before they are sent out. J. D. Harrah, Freewater, Oregon.

**FOR SALE**—Hardy northern bred Italian queens and bees, each and every queen warranted satisfactory. For prices and further information write for circular. H. G. Quirin, Bellevue, Ohio.

**BEEES AND QUEENS** from my Carolina apiaries, progeny of my famous Porto Rican pedigreed breeding stock. Elton Warner, Asheville, N. C.

**FOR SALE**—Leather colored Italian queens, tested, until June 1, \$2.50; after, \$2. Untested, \$1.25; 12, \$13. Root's goods at Root's prices. A. W. Yates, 15 Chapman St., Hartford, Conn.

**FOR SALE**—Root's strain of golden and leather-colored Italian queens; bees by the pound and nuclei. Untested queens, \$1.50 each; select untested, \$2 each; tested, \$2.50 each; select tested, \$3 each. For larger lots write. Circular free. A. J. Pinard, 440 N. 6th St., San Jose, Calif.

**WE are booking orders** for our golden Italian queens for spring delivery after April 15. Untested queens, 1, \$1.50; doz., \$15; select untested queens, 1, \$1.75; doz., \$18; virgin queens, 1, 75c; doz., \$8; tested queens, 1, \$3; doz., \$36. Safe arrival guaranteed. Tillery Brothers, Georgiana, Ala.

**BOOK YOUR ORDERS** for QUEENS now—Goldens, \$2; tested, \$3; banded, \$1.50; tested \$2.50; six or more, 10 per cent less. Clover Leaf Apiaries, Wahoo, Neb.

**EDSON APIARIES** now booking orders for queen bees for delivery during season of 1921. Prices: One untested queen, \$1.75; 50 untested queens, \$57.50; 100 untested queens, \$100. Orders filled in rotation; first shipments March 1, 1921. Edson Apiaries, Gridley, Calif.

**BEEES AND QUEENS** from my New Jersey apiary. J. H. M. Cook, 141st 84 Cortland St., New York City.

**BEEES BY THE POUND, ALSO QUEENS**—Booking orders now. Free circular gives prices, etc. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

**WILL SHIP** a few choice queens with frames of brood, \$4 each. Jes Dalton, Bordelonville, La.

**HIGH QUALITY QUEENS** at reduced prices. Three-banded Italians, reared from best hustlers, non-swarmer, gentle and prolific. Can ship by return mail. Satisfaction guaranteed. Health certificate with each shipment. Untested, 1 to 10, \$1 each; over 10, 90c each. Select untested, 1 to 10, \$1.25 each; over 10 \$1.15 each. Tested, \$1.75 each. Frank Bornhoffer, Rt. 17, Mt. Washington, O.

**TRY** my Caucasian queens, \$1.25 each; hybrids 35c each. Peter Schaffhauser, Havelock, N. C.

**SELECT QUEENS** only. Three-band and leather colored Italians. Tested, \$2.50; untested, \$1.25 each. Geo. W. Coltrin & Son, Mathis, Texas.

**ITALIAN QUEENS**, \$1 each, or \$10 per doz., after June 1. Will book a few more three-frame nuclei of black or hybrid bees with Italian queen, for delivery after June 15, at \$5 each, or 3 lbs. bees on frame of honey for \$4.25. These will be fine to winter for early spring work. Otto Diestel, Elza, Ga.

**DAY-OLD QUEENS**—1, 50c; 100, \$50; 500, \$250. Untested queens, \$1 each. High quality 3-banded Italians. Mailed in safety introducing cages. Delivery and satisfaction guaranteed in U. S. and Canada. Information in circular. Order early. James McKee, Riverside, Calif.

**HUMMER QUEENS**—Untested, \$1 each, \$9 per dozen. Tested \$1.50 each, \$15 per dozen. A trial will convince you that they cannot be beaten. Safe arrival and satisfaction guaranteed. Nuclei at same old price. Geo. A. Hummer & Sons, Prairie Point, Miss.

**FOR SALE**—Golden Italian queens, untested, \$1.15, 6 for \$6.50; 12 or more, \$1 each; tested, \$2 each; select tested, \$3 each; extra select tested, \$4 each. No bees for sale. D. T. Gaster, Randleman, R. D. 2, N. C.

**FOR SALE**—3-banded Italian queens, untested \$1.25 each; 6, \$6.50; 12, \$12. Select untested, \$1.50 each. Satisfaction guaranteed. W. T. Perdue & Sons, Rt. No. 1, Fort Deposit, Ala.

**FOR SALE**—Golden Italian queens, untested, 1, \$1.25; 6, \$7. E. A. Simmons, Greenville, Ala.

**YOU CAN SAVE** queens by using All Right push-in comb introducing cage, 25c, post paid. O. S. Rexford, Winsted, Conn.

**ITALIAN QUEENS**—Three-banded, select untested, guaranteed. Queen and drone mothers are chosen from colonies noted for honey production, hardiness, prolificness, gentleness and perfect markings. Price after July 1, \$1.25 each; one dozen or more, \$1 each. Package bees a specialty. Send for circular. J. H. Haughey Co., Berrien Springs, Mich.

**CHOICE ITALIANS**—Select queens, tested, \$2.50; untested, \$1.25 each. Geo. W. Coltrin & Son, Mathis, Texas.

**QUEEN BEES**—Allen's 3-banded Italians, disease free; the ones that get results. Price, each, \$1.50. J. H. Allen, Orr Station, Anderson, S. C.

**FOR SALE**—Italian queens, untested, 1 for \$1.25, 6 for \$7, 12 for \$13.50. Tested, \$2. Mismatched queens will be replaced if returned in 30 days; dead queens will be replaced if returned by return mail. I have tested breeder from the A. I. Root Co., and will breed queens from her for those that prefer them to my old strain of hustlers. R. B. Grout, Jamaica, Vt.

**FOR SALE**—Burleson's three-banded Italian queens. The kind of bees that get the goods. Guaranteed to please or money back. For balance of season as follows: 1 select untested queen, \$1.25, 6 for \$7, 12 for \$13.50, 100 or more \$1 each. Send all orders, together with remittance, to J. W. Seay, manager, Mathis, Texas. T. W. Burleson, Waxahachie, Texas.

**FOR SALE**—Famous strain of queens of Geo. B. Howe, A. I. Root, Jno. M. Davis three-banded bees, and we also sell extra fine goldens, bees that are bees, both in beauty and wintering, and disease-resisting; not surpassed for honey-gathering, or at least we have not been able to find any that were their superior. Untested, 1 queen, \$2.50; 6, \$12; 12 queens, \$20; 25 queens, \$40; 50 queens, \$70. Try our queens. Also, we shall sell 2-lb. packages, 3-lb. packages with queens for 1922. We try and give prompt service; queens by return mail if we possibly can do so.

H. B. Murray, Liberty, N. C.  
**FOR REQUEENING** use Williams' heavy laying Italian queens; they produce hardy, hustling three-banded workers. Bred from the best disease-resisting strain, and priced in accordance with the present price of honey. Untested, \$1.25, 6 for \$6.50, 12 or more \$1 each; tested, \$2. Satisfaction guaranteed. P. M. Williams, Ft. Deposit, Ala.

**WE are now equipped** to handle your early spring orders for package bees and queens, especially bred for the production of honey. Our queens are bred from the best stock obtainable, and will give satisfaction. Safe arrival guaranteed. Write for prices and terms. Sarasota Bee Co., Sarasota, Fla.



**FOR SALE**—Highest grade three-banded Italian queens. Select untested, 1, \$1.25; 6, \$6.50; 12, \$12; 50, \$47.50; 100, \$90. Virgins, 45c each. No disease, and satisfaction guaranteed. A. E. Crandall, Berlin, Conn.

WE are offering for remainder of season our bright Italian queens, untested at \$1 each, \$10 per dozen, \$75 per hundred. We guarantee safe arrival, pure mating and reasonable satisfaction in United States and Canada. Cash must accompany all orders unless parties are known or satisfactorily rated. Graydon Bros., Rt. 4, Greenville, Ala.

**CALIFORNIA ITALIAN QUEENS** at special prices. After June 15 and to October 1, 1, \$1.25; 6, \$7; 12, \$13; 25 and over, \$1 each; 100, \$90. See larger ad elsewhere. Circular free. J. E. Wing, 155 Schiele Ave., San Jose, Cal.

**NUCLEI**—We make a specialty of shipping 2-frame nuclei. Write for special prices for June delivery. Queens at the following prices: Untested, \$1.50 each; 6, \$8; 12, \$15; 50, \$60; 100, \$100. Tested queens, \$2.50 each. Cotton Belt Apiaries, Roxton, Texas.

**THE ITALIAN QUEENS OF WINDMERE** are superior three-banded stock. Untested, \$1.50 each, 6 for \$8; tested \$2.50 each; select tested, \$3. Prof. W. A. Matheny, Ohio University, Athens, Ohio.

**LARGE, HARDY, PROLIFIC QUEENS**—Three-band Italians and goldens, pure mating and safe arrival guaranteed. We ship only queens that are top notchers in size, prolificness and color. After June 1, untested queens \$1.50 each, 6 for \$8, 12 or more \$1.40 each, 25 or more \$1.25 each. Tested queens \$3 each, 6 for \$16. Buckeye Bee Co., Justus, O.

**QUEENS**—I am now offering queens at pre-war prices. Untested, 1, \$1.25; 25 or more, \$1 each. W. H. Moses, Lane City, Texas.

### HONEY AND BEESWAX

**WANTED**—2,000 pounds good white liquid honey. Send sample and quote best price. Eber Coate, Georgetown, Ill.

**WANTED**—Pure white clover extracted and comb honey. Send sample and price wanted. F. L. Hostetter, Osceola, Mo.

**EXTRA FINE** white sweet clover honey, new crop, in 5-gallon cans, cases of 2 cans, \$15; 1 can, \$8. Write for prices on a ton or a car load. Sample 10c. C. S. Engle, 200 Center St., Sioux City, Iowa.

**FOR SALE**—Choice clover extracted honey. State quantity wanted. New crop will be ready about August 10. J. D. Beals, Oto, Iowa.

**FOR SALE**—Extra fine Michigan white clover and basswood honey. Almost water white; indeed, I doubt if the color, body and flavor can be beaten. Put up in 60-lb. cans, 2 to the case, at 15c per pound, or in 5-pound pails, 50 to the barrel, at 17c per pound. Sample 15c. O. H. Schmidt, Rt. 5, Bay City, Mich.

**HONEY FOR SALE**—In 60-lb. tins, water white orange, 14c; water white sweet clover, 12c; extra light amber sage, 11c; New York State buckwheat, 10c, for immediate shipment, from New York. Hoffman & Hauck, Inc. Woodlaven, N. Y.

**FOR SALE**—Finest Michigan raspberry, basswood and clover No. 2 white comb, \$5.50 p-r case; No. 1, \$6; fancy, \$6.50; extra fancy, \$7, 24 Danz sections to case. Extracted, 60-lb. cans 15c per lb. W. A. Latshaw, Clarion, Mich.

**FOR SALE**—Very fine quality basswood-milkweed mostly milkweed) honey in 60-pound cans. P. W. Sowinski, Bellaire, Mich.

**FOR SALE**—Extracted honey. Write for prices. A. L. Kildow, Putnam, Ill.

**FOR SALE**—New crop fancy white comb honey, No. 1, \$7 per case of 24 sections; No. 2 grade, \$6; clover extracted honey, 15c per pound; amber and buckwheat, 12½c, two 60-lb. cans to case; amber in 50-gallon barrels, 10c per pound. H. G. Quirin, Bellevue, Ohio.

**WANTED**—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendering. Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.

**HONEY WANTED**—Give particulars in first letter. Elton Warner,

### SUPPLIES

**SAVE MONEY** on your shipping cases, tin and glass honey containers, etc. Our free price list tells you how. If you rear queens for sale, be sure to send for our price card of mailing cages. The Rattray-Hamilton, Co., Almont, Mich.

**WESTERN BEEKEEPERS**—We can demonstrate that you can save money on buying bee supplies of best quality. Write for our latest price list. The Colorado Honey Producers' Association, Denver, Colo.

**HAVE YOU** any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list. American Bee Journal, Hamilton, Ill.

**FOR EXCHANGE**—264-egg strain, line bred Reds for bees, hives and supplies. Sil r Dorkings for sale. Penova Farms, Sta. A, East Liverpool, Ohio.

**FOR SALE**—Single tier comb shipping cases and carriers, K. D., all sizes, at bargain prices. Also covers, bottoms, supers, etc. Write for my new bargain list and be convinced. C. C. Brinton, Bloomsburg, Pa.

### FOR SALE

**FOR SALE**—350 colonies of a fine strain Italian bees; all supplied well with honey. Write for full particulars. Chas. Heim & Sons, Three Rivers, Texas.

**FOR SALE**—Cedar or pine dovetailed hives; also full line of supplies, including Dadant's foundation. Write for catalog. A. E. Burdick, Sunnyside, Wash.

**FOR SALE**—My place of 4 acres, with cottage, garage, bee house and other out buildings; 4 miles from town. Best bee location in southern Wisconsin. Can sell honey at the door. Also 75 colonies in 8-frame hives, 175 hive bodies with drawn combs. Bees inspected, guaranteed no disease. Reason for selling, wish to move nearer my wife's folks. Write for price. James D. Benson, Rt. 5, Monroe, Wis.

**FOR SALE or EXCHANGE**—Small acreage and home near town, and 280 colonies of bees in first-class condition. Extracting equipment. Bargain price. Will exchange for ranch property in foothills. Box 1044, Wickenburg, Ariz.

**FOR SALE**—House 30x30, with cellar for bees and extracting room, 4 acres hillside land, finest of location along Mississippi river; white clover, basswood; 1 mile from railroad station and postoffice; \$2,000 without bees. Can furnish 50 stands of bees transferred this season from box hives into 10-frame hives with full sheets foundation, at \$19. Extracting supers with full depth Hoffman frames, at 75 per cent catalog price; or will take partner with cash to enlarge business. L. W. Maxwell, Turkey River, Iowa.

**BOOKLOVERS** will be glad to learn of a reprint of the two volumes of Cheshire's valuable work "Bees and Beekeeping." We have secured a small supply and can offer the two-volume set at \$6, postpaid. American Bee Journal, Hamilton, Ill.

**FOR SALE**—Hamburg chickens; rare old violin. Elias Fox, Union Center, Wis.

**FOR SALE**—"Superior" Foundation (Weed process). Quality and service unexcelled. Superior Honey Co., Ogden, Utah.

### WANTED

**WANTED**—Beeswax, old combs and cappings for rendering on shares. Also wax accepted for trade. Top market prices offered. A. I. Root Co., Council Bluffs, Iowa.

**WANTED**—We have many calls from educators for copies to complete their files of the older Bee Journals. If you have complete volumes or miscellaneous numbers of any Bee Journals previous to 1900, write us, giving a list, and we will be glad to quote a price. Old bee books, now out of print, are also desirable. We act as a clearing house for this kind of materials. American Bee Journal, Hamilton, Ill.

**WANTED**—Bees in colonies, comb and extracted honey. Frank Coyle, Penfield, Ill.

**WANTED**—Extractor. Walter P. Brown, Rt. 4, Carthage Mo.

**WANTED**—Your order for "Superior" Foundation. Prompt shipments at right prices. Superior Honey Co., Ogden, Utah.

### SITUATIONS

**WANTED**—Situation. Man 28, Swedish, good health, experienced in queen rearing and extracted, wishes steady work with a first-class queen breeder or comb and extracted honey producer, to gain more experience. Ready to come; go anywhere. Nordenswan, Care The Farmer Apiaries, Ramer, Ala.

**WANTED**—Single man as foreman. Comb honey production. Steady employment. Must be able to manage help and several outyards. State wages and experience, also age. B. F. Smith, Jr., Fromberg, Mont.

**WANTED**—Manager for the Michigan Honey Producers' Exchange, Inc. Must be a practical supply man and thoroughly understand bottling and sale of honey. A good position for the right man. Applicant kindly give age, experience and reference in first letter, and oblige. E. D. Townsend, Chairmar, Northstar, Mich.

### MISCELLANEOUS

**SAMPLE FREE**—They say "It's as good now as when Hutchinson ran it." Under new ownership, our bee journal is growing fast, better every issue, a "different" kind of a journal. Let's get acquainted. \$1.50 a year, and worth it. The Domestic Beekeeper, Lansing, Mich.

**LEAGUE EMBLEMS**—We still have a number of U. S. Beekeepers' emblems, buttons or pins, bronze or gold. Send 50 cents and get one. American Bee Journal, Hamilton, Ill.

**BLACK SIBERIAN HARES**—Enormous sizes, delicious meat and beautiful fur. Write for information and prices. Siberian Fur Farm, Hamilton, Canada.

**DR. MILLER'S BEE SONGS** are in "Songs of Beedom." Ten songs for 20 cents, postpaid; 2-cent stamps taken. Also Teddy Bear souvenir postal cards, 10 for 10 cents. Address Geo. W. York, Box 84, Spokane, Wash.

**HONEY** FINEST Michigan Raspberry Basswood and Clover comb and extracted honey. Unexcelled for quality.

Crate 6 cases 24 sec. Fancy comb.....	\$45.00
Crate 6 cases 24 sec. A No. 1 comb.....	42.00
Crate 6 cases 24 sec. No. 2 comb.....	39.00
Crate 6 cases 24 sec. extra fancy.....	48.00
Two cans 120 lbs., extracted.....	30.00

Send Today for Free Sample

W. A. LATSHAW COMPANY, Clarion, Michigan

### Adult Bee Diseases

The disease of my adult bees entirely disappeared upon the feeding of sugar syrup and requeening those colonies affected. Those colonies that had previously been given feed did not seem to get the disease.

M. P. Woodworth,  
Oshkosh, Wis.

# INCREASE YOUR INCOME

By Selling Your Honey at Retail

L. A. Coblentz of Idaho could get no offer above eight cents per pound for his last years crop from the bottlers. With his wife's help he sold more than 100,000 pounds direct to the consumer at current retail prices, viz: 15c per pound in sixty pound cans; 20c in ten pound pails and 22c in five pound pails.

You can do as well with the same effort. Don't ruin your future market by cutting below a living price, but put up your crop in attractive containers and sell it direct to the consumer.

We will furnish you the labels and other necessary printed matter.

*Send today for our label catalog and samples of printing*

**AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS**

## Three-Banded Leather-Colored Italian Queens

Bred from Selected Root Home-bred Breeders

Our breeding queens are backed by over 50 years' experience in breeding good queens.

Untested -----	75c each	Tested -----	\$2.00 each
Select untested -----	\$1.00 each	Breeders -----	\$5.00 to \$15.00 each
Pound packages, shipped on comb foundation.		Nuclei	
1-lb. package, no queen -----	\$2.00	1-frame, no queen -----	\$2.00
2-lb. package, no queen -----	\$3.75	2-frame, no queen -----	\$3.75
3-lb. package, no queen -----	\$5.25	3-frame, no queen -----	\$5.25

Special prices on large orders and contracts.

Root quality bee supplies. We are the bargain house for Southern beekeepers. It will pay you to get our Catalog and Prices.

**THE SOUTHLAND APIARIES, Hattiesburg, Miss.**

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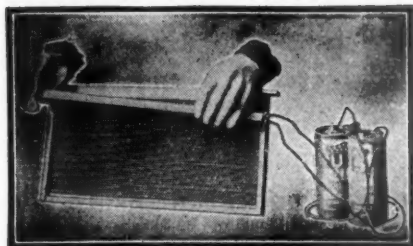
## CANS

At greatly reduced prices. We are confident we can save western beekeepers on their requirements for all types of honey containers. Get our figures before buying.

AND at last, an inexpensive, but attractive advertising leaflet, bearing your apiary name, for distribution among your customers. Here is an effective means of building up a high class retail trade. Let us send you a sample, and quote.

**THE A. I. ROOT CO. OF IOWA, Council Bluffs, Iowa**





### ELECTRIC IMBEDDER

Price without Batteries, \$1.50

Not postpaid.

Actually cements wires in the foundation. Will work with dry cells or with city current in connection with transformer. Best device of its kind on the market.

For sale by all supply dealers.

**Dadant & Sons, Manufacturers**  
HAMILTON, ILL.

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### BEE HIVES

Manufactured from

Red Cedar and White Pine

Made with lock corners.

Standard sizes kept in stock. Odd sizes made to order.

Write us for prices on anything you may want.

**WILLIAMS BROS.**

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First Lessons in Beekeeping, by C. P. Dadant. 167 pages, 178 illustrations. Cloth \$1.

Dadant System of Beekeeping, by C. P. Dadant. 118 pages, 58 illustrations. Cloth \$1.

The Honeybee, by Langstroth and Dadant. 575 pages, 229 illustrations. Cloth \$2.50.

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Practical Queen Rearing, by Frank C. Pellett. 105 pages, 40 illustrations. \$1.00.

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**AMERICAN BEE JOURNAL**  
HAMILTON, ILL.



## QUEENS



**Select Three-Banded Italians of the highest quality (one grade)**  
Eight hundred honey-gathering colonies from which to select the very best breeders. No one has better bees than I. Can make prompt delivery by return mail. I have not yet disappointed a customer.

### PRICES

For 1 untested \$1.00; for 6, \$5.50; for 12 or more, \$10.00 per dozen

Tested queens \$2.00 each

A new customer from Missouri, where you have to show them, writes: "The dozen queens arrived promptly. They are the most beautiful I ever saw." (Name on request.) Another one, from the same state, writes: "Your 100 2-lb. packages averaged over 90 pounds surplus honey per colony; 10 pounds more per colony than the other 2-lb. packages purchased elsewhere."

H. H. THALE, Durham, Mo.

Now listen to this, from Ontario, Canada: "Bees and queens purchased of you last season all wintered without a single loss. Save me 50 untested queens for May delivery." (Name on request.)

My customers say my queens stand the northern winters. They are bred up for this purpose, combined with the highest honey-gathering qualities and prolificness.

Pure mating, safe arrival, and satisfaction guaranteed. It is left with customer to say what is satisfaction.

**JASPER KNIGHT, Hayneville, Alabama**

### BEEKEEPERS WE MANUFACTURE DOVETAILED HIVES, HOFFMAN FRAMES, SECTIONS AND SHIPPING CASES

Our hives are made of best grade White Pine, cut accurate and smooth to standard measure. Sections are made of Basswood polished on both sides. There are no better made.

We carry a complete line of everything used in the apiary. Our shipping facilities are as good as can be found anywhere. We want your business. We guarantee prompt and satisfactory service. Price list free.

**MARSHFIELD MANUFACTURING COMPANY, Marshfield, Wis.**

## TIN CANS and GLASS JARS

We have secured a fresh supply of tin cans and glass jars as follows:

60 lb. cans in bulk and 1 and 2 in a case

10 lb. cans in cases of 6, 50 and 100

5 lb. cans in cases of 12, 50 and 100

2½ lb. cans in cases of 24, 100 and 200

6 oz. jelly glasses in reshipping cases of 24

16 oz. Mason jars in cases of 24

Our prices are made as low as is possible. Now is the time to pack your honey and get it ready for your nearby market

Write for complete price list

**DADANT & SONS, Hamilton, Ill.**



## MR. BEEKEEPER—

We have a large plant especially equipped to manufacture the supplies that you use. We guarantee all materials and workmanship. We ship anywhere. We allow early order discounts and make prompt shipments. *Write for free illustrated catalog today*

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## TENNESSEE-BRED QUEENS

Forty-nine Years' Experience in Queen-Rearing  
Breed Three-Band Italians Only

	Nov. 1st to June 1st			June 1st to Nov. 1st		
	1	6	12	1	6	12
Untested Queens.....	\$2.00	\$ 9.00	\$16.80	\$1.50	\$ 8.00	\$14.50
Select Untested.....	2.25	10.50	18.00	2.00	9.50	16.00
Tested.....	3.50	20.00	35.00	2.50	13.00	25.00
Select Tested.....	4.00	22.50	40.00	3.00	16.00	30.00

Select tested, for breeding \$7.50

The very best queen tested for breeding \$15

Capacity of yard 6000. I sell no bees by the pound or nuclei except with high priced tested and breeding queens

Queens for export will be carefully packed in long distance cages, but safe delivery is not guaranteed

**JOHN M. DAVIS, Spring Hill, Tenn.**

Five colonies of your stock produced 2660 finished sections—the best one 616 finished sections  
JOHN M. BIXLER, Corning, Iowa, February 1, 1921

## MAKE YOUR BEES PAY

If you want bigger honey profits, *get the best queens you can buy.* This is the secret of successful bee raisers. Hundreds of America's greatest honey producers order Forehand's 3-banded Italian Queens. Follow their example. Order from Forehand and be sure of satisfactory results. Backed by 28 years' successful experience in queen breeding and honey production. Take no chances. Experimenting is costly. So certain am I that my queens will satisfy you that I will gladly replace unsatisfactory queens delivered in the United States or Canada, or refund your money. You be the judge and jury. Can anything be fairer?

### PRICES—Aug. 1 to Nov. 1.

	1	6	12
Untested .....	\$1.00		\$10.00
Select untested .....	1.25		12.00
Tested .....	2.50	\$13.00	24.00
Select tested .....	3.00	16.50	30.00
Bees in 2-lb. packages—1 package, \$6; 25 or over, \$5.80; 50 or over, \$5.40; 100 or over, \$5; without queens.			

Place your order now. Prices low, quality considered. Write for circular and discounts on large orders.

**N. FOREHAND**  
RAMER, ALA.

Breeder of 3-banded Italian Queens exclusively

### Established 1885

Beekeepers should send for our new catalog, free. Beehives made of white pine. Root Co.'s old standby make of supplies. Order early. Beeswax in exchange for supplies or cash.

**J. Nebel & Son Supply Co.,**  
High Hill, Mo.

**Shrubs and Trees**  
That provide Nectar for the Bees and Fruit for the household. No Cash with order. Get our Catalog TODAY.  
**PROGRESS NURSERIES**  
1318 Peters Ave. Troy, Ohio

## BARNES' FOOTPOWER MACHINERY

Read what J. E. Parent, of Chariton, N. Y. says:

"We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames and a great deal of other work."



**W. F. & JOHN BARNES**  
995 Ruby St., ROCKFORD, ILLINOIS

**SHE-SUITS-ME** queen-bees, prices for 1921: Untested Italians, \$2 each; \$1.75 each for 10 or more, prior to June 15. After June 15, 1 to 9 queens \$1.50 each, 10 to 24 \$1.40 each, 25 and up \$1.25 each.

**ALLEN LATHAM,**  
Norwichtown, Conn.

## BEE SUPPLIES

We carry a complete stock of supplies at all times, and can make prompt shipments. Our prices will interest you.

Send Us Your Inquiries  
**A. H. RUSCH & SON CO.**  
Reedsville, Wis.

## QUEENS

Quirin's Northern bred, hardy Italians, now ready to mail. Safe delivery and satisfaction guaranteed.

### PRICE OF BEES AND QUEENS

	1	6	12
Untested .....	\$1.50	\$ 8.00	\$15.00
Tested .....	2.00	10.00	18.00
2 Comb nuclei.....	6.00	32.00	60.00
3 Comb nuclei.....	8.00	45.00	85.00
8 frame colony .....	12.00	70.00	
10 frame colony .....	15.00	85.00	

Breeders fair, \$5, the very best \$10 each.

Add the price of queen wanted with nuclei or colony. This is our 30th consecutive season at queen rearing. Address all orders to

**H. G. QUIRIN, Bellevue, Ohio.**

**CHESHIRE'S "BEES AND BEEKEEPING,"** in two volumes, has recently been reprinted. We offer it to our subscribers at \$6 for the two volumes, postpaid.  
AMERICAN BEE JOURNAL, Hamilton, Ill.



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Distributor for the Central West, RODMAN SALES CO., Gateway Station, Box 18, KANSAS CITY, MO.

**W. T. FALCONER MFG. COMPANY, Falconer, (near Jamestown) N. Y., U. S. A.**

*"Where the good Beehives come from"*

## HONEY

All sweets have experienced sensational declines

The world's supply of sugar is estimated at 1,250,000 tons in excess of requirements.  
If you have honey, sell it early. If you cannot sell it, WE CAN.

Write us and send samples.

**MONEY for HONEY**

**PATON & COWELL**

No. 217 Broadway, New York, N. Y.

### HIVES AND QUEENS AT PRE-WAR PRICES

Hives, with frames and one-piece wood covers, made of best grade of cypress and accurately manufactured.

Prices: 10-frame size, \$14 per lot of 5. 8-frame size, \$13.50 per lot of 5. Full depth supers (with self-spacing frames), \$1.50 each.  
15 per cent discount on the above prices.

Queens: Untested, \$1 each; 10 or more, 65c; tested, \$1.50. Breeders, \$3 each.

These Italian queens are bred from best stock obtainable.

Medium brood foundation, 68c per pound.

**A. R. IRISH, Ludowici, Ga.**

#### QUINN'S QUEENS OF QUALITY

Have no superiors—"There's a reason." Are Mandelion bred, good qualities accentuated. Gray Carniolans, Gray Caucasians, most gentle of all, prolific, hardy, vigorous, disease-resisting white comb builders—they deliver the goods.

ITALIANS, 3-banded, line-bred, pedigreed; need no boosting; they speak for themselves.

CHAS. W. QUINN, Sabot, Va.

#### MOTT'S NORTHERN BRED ITALIAN QUEENS

Have a World-wide reputation. Sel. Unt., 1, \$1.25; 6, \$7.50; 12, \$15. Sel. guaranteed pure mated or replace, 1, \$1.75; 6, \$10; 12, \$18. Sel. tested, \$2.50 each.

Filling orders by return mail at this present writing by the aid of my Southern branch. Plans, "How to Introduce Queens" and "Increase," 25c.

E. E. MOTT, Glenwood, Mich.

### QUEENS

Requeen now for the coming winter, with Gentle Three-band Italians.

Untested, \$1.25; 12 or more, \$1 each.

All Queens Guaranteed.

D. W. HOWELL, Shellman, Georgia.

### QUEENS OF MOORE'S STRAIN OF ITALIANS

Produce Workers

That fill the supers quick  
With honey nice and thick

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Untested queens, \$1.50; 6, \$8; 12, \$15.

Select untested, \$2; 6, \$10; 12, \$19

Safe arrival and satisfaction guaranteed.

Circular free.

I am now filling orders by return mail.

J. P. MOORE, Queen Breeder  
Route 1 Morgan, Ky.

## Quality Bee Supplies

FROM A

## Reliable House

Without fear or favor, I place my BEE SUPPLIES and SERVICE before you.

It is the small annoyances that often grow into disastrous results. Avoid the so-called "little losses" by using MONDENG'S GOODS.

Quality is first—save time when you put your goods together, by getting supplies that are accurately made. Service is next—no delays when bee supplies are ordered from my factory.

I am ready to meet your urgent needs.

Send for my new price list.

Closing out all Langstroth and Wisconsin hives and supers. Also Langstroth triangular top-bar frames and eight-frame D. T. supers for 4x5 sections. Will sell at cost price. Write for quotations.

### CHAS. MONDENG

146 Newton Ave. N. and 159 Cedar Lake Rd. Minneapolis, Minn.

## QUEENS, Select Three-Banded

Write for descriptive circular of our Select Italian Queens. Pure Mating, safe arrival and satisfaction guaranteed.

	1	6	12	50
Untested	\$1.25	\$ 7.00	\$13.00	\$50.00
Tested	3.00	16.00	30.00	

"The queens you furnished me last year were all tip-top, and one of them caps the climax. I never saw anything like her."—D. E. Scott, Caney Springs, Tenn.

**HARDIN S. FOSTER, Columbia, Tenn.**

## QUEENS, THREE-BAND ITALIANS

BRED FOR BUSINESS

Only one grade—select. Satisfaction guaranteed

	1	12	25 to 50	100
Untested	\$1.00	\$10.80	\$ .80 ea.	\$70.00
Tested	1.75	18.00		

A two-pound package of bees and untested queen \$4.75 25 or more packages \$4.50 each

**CANEY VALLEY APIARIES, J. D. Yancey, Mgr.**  
BAY CITY, TEXAS

## GOLDEN ITALIAN QUEENS

	Nov. 1 to June 1			June 1 to Nov. 1		
	1	6	12	1	6	12
Untested	\$2.00	\$ 9.00	\$16.80	\$1.50	\$ 8.00	\$14.50
Select Untested	2.25	10.50	18.00	2.00	9.50	16.00
Tested	4.00	22.50	40.00	3.50	10.50	36.00
Select Tested	4.50	25.00	45.00	4.00	22.50	40.00

**BREEDERS \$12.50 TO \$25.00**

10 per cent additional for Exported Queens. Queens for Export will be carefully packed in long distance cages, but safe delivery is not guaranteed.

NO NUCLEI, FULL COLONIES OR POUND PACKAGES.

**BEN G. DAVIS, Spring Hill, Tenn.**

## Stutts Italian Queens are Supreme

My Italians are gentle, prolific, very resistant to foulbrood, and the best of honey gatherers. Untested, \$1.25; 6, \$6.50; 12, \$12.50. Select untested, \$1.50; 6, \$8; 12, \$15.

Take advantage and requeen your yard with the best strain of Italians.

I sell no nuclei, or bees by the pound. Health certificate with every queen.

Pure mating and safe arrival guaranteed.

**ALFRED A. STUTT, Lincoln, Ill.**

## QUEENS

I. F. Miller's strain Italian queen bees. Northern bred for business; from my best *Superior Breeders* (11 frames brood on April 7). Gentle, roll honey in, hardy, winter well, not inclined to swarm, 3-banded; 27 years breeding experience. Satisfaction guaranteed. Safe arrival in U. S. and Canada. Untested, \$1.50; 6, \$8; 12, \$14. Select, \$1.75; 6, \$9; 12, \$17.

**I. F. MILLER, Brookville, Pa., R. 2**

## SECOND-HAND AND DAMAGED BOOKS

In revising our stock of books, we find a number of damaged and second-hand books, good for all practical purposes, but not worth full price.

We offer them at the following postpaid prices:

Cowan's Honeybee	\$1.00
Cheshire, Vol. 1 and 2	5.00
Phillips Beekeeping	1.75
Langstroth Revised	1.50
Cowan's Waxcraft	1.00
Nelson's Embryology	1.50
Root's A B C	2.25
Practical Queen Rearing	.60
First Lessons in Beekeeping	.60
1,000 Answers to Beekeeping Questions	.75
Dadant System of Beekeeping	.60
Doolittle's Queen Rearing	.35
Beekeeping in the South	.60
Advanced Bee Culture	.75

Address all orders to

**American Bee Journal, Hamilton, Illinois**

## GOOD QUEENS

**GOLDEN OR THREE-BANDED**

Fine large queens of best quality.

Untested only, 1, \$1.25; 6, \$7.00; 12, \$13.00

**ROSS B. SCOTT, LaGrange, Ind.**



# Crop and Market Report

Compiled by M. G. Dadant

For our August issue we asked reporters to write us on the following questions:

1. How is the honey crop so far?
2. What are the prospects for the balance of the year?
3. How is honey selling? Are there any big buyers, and what are they offering for comb and extracted?
4. What should No. 1 comb honey retail for? What should the price be for 5-lb. pails of extracted? For 10-lb. pails?
5. What, in your opinion, should be the jobbing price this fall for amber and white extracted? Of comb honey, No. 1 and No. 2?

## THE HONEY CROP

Southern New England reports a very good crop, whereas the northern part has only half a crop. New York reports are from fair to poor, indicating that the crop will not be large, and the same is true throughout the rest of the East.

In Georgia and Florida the crop has been light, probably half a crop, while in Mississippi and Alabama, though the crop is not large, it is well above last season, when the sweet clover failed. Louisiana, starting poor, has had a most remarkable flow. Tennessee and Kentucky have been fairly well favored, especially in the east portions, and the same applies to the Carolinas and Virginias.

Ohio seems to have had a very good crop, with poor crops in Indiana. Wisconsin, Minnesota and Michigan are very poor, especially in the southern half of these States, where the drought has been severe. Illinois will have very little white surplus honey. Iowa is poor in the eastern half, with a fairly good crop in the western, though cut down by drought. Missouri has a fair crop and Kansas, Nebraska and Dakota only fair, with Nebraska the best of the three.

It is too early yet for any data on the intermountain territory, though indications are for a fair crop, nothing phenomenal.

Texas started in with much discouragement, but mesquite has yielded this year as of old, and reports are now that normal conditions will be attained.

Washington and Oregon are only fair, with North California good. In Southern California there has been much discouragement. Early, it was entirely too dry, and rains came too late to do the sages the most good. Indications are for not more than one-third crop, and possibly less, with many failures.

Basing opinion on reports, the dry weather has hurt many localities and the flow should not be as good as last year. Even though there may be more bees in the country, the total crop of honey should not be nearly up to last year.

Canada, especially Ontario, is having an excellent crop.

## PROSPECTS

In very few locations are prospects excellent for the balance of the year, running mostly from poor to fair.

## SALES AND BUYERS

Honey sales are slow in most localities. Report is made of one car of white Idaho honey being sold at 10 cents f. o. b. New York. The Texas Association has reduced its price to a basis of 9 cents for extracted and reports fair sales at that price, with much pushing necessary to make the honey go.

One or two offers have been made by large buyers on a basis of \$4.50 for No. 1 comb and 8 cents for white extracted, with little disposition to sell at this figure jobbing just at present.

## RETAIL PRICES

The consensus of opinion is that No. 1 comb honey should not sell for less than 30 cents per section, retail, in the section of production, which means that if there is any effort made to maintain a uniform price, the price should be put at at least 35 cents per section. Demand

during 1920 was great for comb honey, greater than the supply, and it should not be difficult to clean up this year's production at remunerative prices.

The lowest price suggested on extracted honey was 75 cents for 5-lb. pails and \$1.40 for 10-lb. The same reporter suggested a 10-cent price jobbing for white honey. These prices are hardly in line, since it is generally agreed that the retail price should be double the jobbing price, cost of containers to be added. Basing our figures on 10-cent honey, the 5's should sell for \$1.10 to \$1.25 and the 10's from \$2.10 to \$2.25.

In reality, the general run of prices suggested were \$1 for 5-lb. and \$2 for 10-lb., with a suggestion of shading of prices of the 10's to \$1.90. It seems that the above prices are not any too high.

## JOBGING PRICES

The lowest price suggested for comb was \$3.50 for No. 2 and \$3.75 for No. 1. This must have been for the amber comb, however, for a majority of prices suggested were about \$4.75 for No. 2 and \$5.50 for No. 1, with the very best white alfalfa-sweet clover held possibly 50 cents per case higher. These prices are f. o. b. shipping point.

Undoubtedly the amount of comb honey produced in the East and Middle West will be a minimum this year, owing to the peculiarities of the honey flows, which have not been conducive to comb-honey production.

Wide variation is seen in the prices for extracted. The lowest prices suggested are 6 cents for amber and 8 cents for white, and range up to 20 cents for white, some evidently having been out of touch with the markets since early last fall.

Most of the suggestions centered around a price of from 7 to 9 cents for amber and 9 to 12 cents for best white extracted, f. o. b. shipping point.

Present indications would not warrant optimism on honey prices. Sugar has reached the extreme low price of \$5.25 in the New York markets, while honey has shown an inclination to drop slowly in price with each weekly price sheet sent out by commission men. Also the attitude of the buying public has been clearly not to buy anything except what is actually needed.

On the other hand, the cloud has a silver lining. Honey certainly has tobogganed as much as other farm products, and statisticians tell us that we may look for a gradual incline in farm prices till they reach a remunerative and stable basis.

There is also a dearth of fruits. The sweet demand should in part be supplied by substituting honey. Maple products are also the shortest in years.

The new proposed duty on honey is 2½ cents a pound. There are already indications that West Indian honey is seeking European markets. The duty would have the immediate effect, if enforced, of raising the domestic price in proportion, especially immediately after the rate went into effect.

More than anything else, however, the price of honey will be governed by the beekeepers themselves, whether they throw their honey on the market quickly for what they can get, or pursue a more sane and safe policy and let honey come on the jobbing markets as slowly as possible, so as to create a demand on the part of the jobbers, rather than throw the offers at them.

In a retail way, the sooner honey is pushed, the better. No efforts should be lost to push local sales at good substantial prices, and no effort should be lost to keep the market regularly supplied throughout the year.

Experienced salesmen tell us that one trouble with the honey price situation is that the local markets are glutted during five months only to be bare and unsolicited during the balance of the year, a condition which will not be conducive to putting honey on the list of staple products instead of luxuries.

Honey, except possibly comb, is not a perishable product, does not deteriorate with six months holding, and should not be so treated by the beekeeper.

# EXPERIENCE

*is a great teacher*

Do you profit by the experience of others?

During our twenty-nine years of successful commercial queen rearing we have helped many of America's best beekeepers find the road to success. Another improvement on your present successful plans may have a vital and valuable influence on the future course of your business as it did on W. G. Warnocks, proprietor of the Oakwood Poultry and Fruit Farm at Geneseo, Illinois. In his last order he said:

"The package and queens I got from you last season did fine. I divided and built up three good colonies. The queens were very prolific. In four weeks after receiving this package they had eight frames of brood and honey. I handle them without either smoke, veil or gloves."

	Prices			
	1	6	12	100
Untested -----	\$1.25	\$ 6.50	\$11.50	\$0.90
Select untested ---	1.50	7.50	13.50	1.00
Tested -----	2.00	10.00	18.50	
Select tested -----	2.75	15.00	27.00	

We guarantee pure mating and satisfaction the world over. Safe arrival in the United States and Canada.

**W. J. FOREHAND & SONS, Ft. Deposit, Ala.**

## ITALIAN QUEENS

Reared and sold to July first this season. Our efforts shall always be to furnish as many customers as possible the best Italian Queens at the least possible price

Untested, 1 to 12	-	-	-	-	\$1.00 each
Untested, 12 or more	-	-	-	-	.75 each
Tested, 1 to 12	-	-	-	-	2.00 each
Tested, 12 or more	-	-	-	-	1.50 each
Breeders	-	-	-	-	\$5.00 to 25.00 each

Return dead and unsatisfactory queens. Can save you money on  
**Cypress Bee Supplies**

**THE STOVER APIARIES, MAYHEW, MISSISSIPPI**



### 3-Banded — Highest Quality of Italian Queens — Golden

Twenty-five years of select breeding from the best.

We are prepared to ship queens by return mail, or on very short notice. Every queen sent out by us is guaranteed to arrive in perfect condition and to give absolute satisfaction. Our strains have proved themselves to be not only great honey gatherers but also very resistant to disease, especially European foulbrood.

Listen to what others say about them:

"One of your queens built up from a nucleus and made 360 pounds of surplus honey. Enclosed find \$75 for fifty queens. I want these for requeening European foulbrood colonies, as I find your stock resistant." Troy, Pa. (Name on request.)

"The queens I got from you have all the others skinned. They are gentle, best of workers and stand the long winters here. Other queens coming from a shorter distance do not hold a candle to them." Gilbert Plains, Man., Canada. (Name on request.)

#### PRICE LIST OF OUR QUEENS

Untested..... \$1.10 each; 6 to 25, \$1.05 each; 25 to 50, \$1 each; 50 up, 90c each  
Select untested... \$1.25 each; 6 to 25, \$1.15 each; 25 to 50, \$1.10 each; 50 up, \$1 each  
Tested..... \$2.25 each; 6 to 25, \$2.15 each; 25 to 50, \$2.10 each; 50 up \$2 each  
Select tested... \$3.00 each; 6 to 25, \$2.75 each; 25 to 50, \$2.50 each; 50 up, \$2.25 each  
Breeders, \$25 up to \$35 each. Wings clipped free of charge on request.

**M. C. BERRY & CO., Hayneville, Ala., U. S. A.**

## OUR BACKDOOR NEIGHBORS

BY FRANK C. PELLETT

A book of fascinating stories of animal life. Will delight the children and please the grown folks. Illustrated with many photographs from life.

PRICE \$1.50 POST PAID

**AMERICAN BEE JOURNAL**  
HAMILTON, ILL.

## TIME IS MONEY

When the honey flow is on and you need supplies which will enable your bees to gather a maximum crop of honey. If you are rushed and in a particular hurry, try ordering from Council Bluffs. For we are well stocked with the supplies you need. Can ship over any one of nine trunk lines to your very back door, and are prepared to give your order immediate and individual attention.

If you want action, try us. That is, if you use quality goods. While your harvest may be largely gathered, you will want shipping cases, pails, jars and additional bee supplies during the next few months. We are in position to make immediate shipments.

**THE A. I. ROOT CO. OF IOWA, COUNCIL BLUFFS, IA.**

The "Railroads Everywhere" Town

## SECTIONS! SECTIONS!! SECTIONS!!!

While our present stock lasts we give you the opportunity to buy No. 2 sections at a big reduction. We offer as follows:

No. 2— $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$  two beeway Sections, per thousand .....\$8.00  
No. 2— $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{2}$  plain Sections, per thousand ..... 7.00  
No. 2— $4 \times 5 \times 1\frac{1}{2}$  plain Sections, per thousand ..... 7.00

We are pleased to announce a big reduction in Bee Supplies. Send us a list of the goods you wish to purchase and we will quote you our new reduced prices.

**AUGUST LOTZ COMPANY, Boyd, Wisconsin**



Seattle  
Yakima  
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**LILLY'S**  
Established 1925

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**LEWIS BEEWARE  
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**PORTER BEE  
ESCAPE  
SAVES  
HONEY  
TIME  
MONEY**



For sale by all dealers  
If no dealer, write factory  
**R. & E. C. PORTER, MFRS.**  
Lewistown, Illinois, U. S. A.  
(Please mention Am. Bee Journal when writing)

A NEW BEE BOOK

"Dadant's System of Beekeeping"

Send for a copy today.

Price \$1.00.

**HONEY****HONEY****HONEY**

☐ Beekeepers who are supplying Honey to a regular family trade, or who are located along the highways, and are supplying motorists, know that their customers want a honey of a uniform color and flavor.

☐ And unless the Honey is at all times uniform in color and flavor, customers sometimes become dissatisfied.

☐ Our special blend of fancy Honeys (liquid) is always uniform and is of a fine mild flavor, and will satisfy the most exacting trade.

**SPECIAL BLEND OF FANCY HONEY (LIQUID)**

60 lb. Tins, 2 per case.....	14c lb.
10 lb. Tins, 6 per case.....	16c lb.
5 lb. Tins, 12 per case.....	17c lb.
2½ lb. Tins, 24 per case.....	18c lb.

**VARIOUS GRADES (CRYSTALLIZED)**

Water White Orange.....	14c
Water White Sweet Clover.....	12c
Extra Light Amber Sage.....	11c
N. Y. State Buckwheat.....	10c

**GLASS AND TIN HONEY CONTAINERS**

2½-lb. cans, 2 dozen reshipping cases, \$1.45 case;  
crates of 100, \$6.50  
5-lb. pails (with handles), 1 dozen reshipping cases, \$1.35 case;  
crates of 100, \$8.30

10-lb. pails (with handles), ½ dozen reshipping cases, \$1.10 case;  
crates of 100, \$12.75  
60-lb. tins, 2 per case—new, \$1.30 case; used, 50c.

**WHITE FLINT GLASS, WITH GOLD LACQD. WAX LINED CAPS**

8-oz. honey capacity, cylinder style.....\$1.50 per carton of 3 doz.  
16-oz. honey capacity, table jar service. \$1.40 per carton of 2 doz.

Quart, 8-lb. honey capacity, Mason style, \$1 per carton of 1 doz.

**HOFFMAN & HAUCK, Inc. Woodhaven, N. Y.**

**CALIFORNIA ITALIAN QUEENS**

The old reliable three-band stock that delivers the goods. This stock is descendant from the A. I. Root Co.'s best breeders. Then the J. P. Moore long tongue, red clover strain was added. Next some of Doolittle's famous stock was secured, one breeder in particular, one which was selected by Mr. Doolittle himself and caged with his own hands a short time before his death, proved extra remarkable. This season the Jay Smith strain has been secured, and these are proving equal, if not superior, to anything I have ever seen. In order to keep running to maximum capacity till fall, I am offering

**SPECIAL PRICES FOR JUNE, JULY, AUGUST AND SEPTEMBER**

Delivery June 15 to October 1, for orders booked in advance:

Select Untested ----- 1, \$1.25; 6, \$7.00; 12, \$13.00; 25 to 50, \$1 each; 100, 90c each  
Tested ----- 1, \$1.75; 6, \$10.00; 12, \$18.00  
Superior breeder, 1 year old, \$5.00

Every queen actually laying before being caged, and fully guaranteed. I also guarantee safe arrival in United States and Canada. Circular free.

**155 SCHIELE ST.**

**J. E. WING**

**SAN JOSE, CAL.**





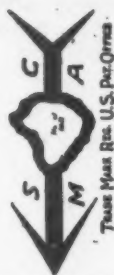
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ALWAYS MAKE SURE THAT THIS TRADE-MARK IS STAMPED ON EACH PIECE OF

**"Tidewater" Cypress**  
**"THE WOOD ETERNAL"**

THEN YOU BUY SAFETY (AND SATISFACTION) FIRST, LAST AND 'TWEEN TIMES



**"ALL-HEART" GRADE FOR BEEKEEPERS' USE**

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## ALUMINUM HONEYCOMBS

will eventually be used by every progressive beekeeper.

Don't be one of the last to profit by their  
remarkable merits

COMBS MANUFACTURED BY

**The Duffy-Diehl Company of Pasadena, Calif.**

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**THE DIAMOND MATCH COMPANY**  
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**CHICO, CALIFORNIA**

## THE QUESTION—

### SHALL I REQUEEN NOW?

## THE ANSWER—

### AUTHORITIES URGE REQUEENING DURING LATE JULY AND AUGUST—BECAUSE

The fall queen is cheaper. Unlike an old queen, a new queen in the fall will lay well, regardless of the fall honey flow. At least two full cycles of brood should be laid by the new queen, insuring a strong colony for wintering.

Requeening means a break in egg-laying of nearly one week, with the consequent loss of brood and bees. With spring requeening this loss of bees is a real loss in honey later.

Fall requeening brings this loss at a time when the least damage is done. Requeen now. Do not wait till spring.

### ROOT QUEENS ARE HARDY, DISEASE-RESISTING AND PROLIFIC

#### QUEENS—July to October

Untested .....	\$1.20	Tested .....	3.00
Select untested .....	1.50	Select tested .....	3.50

#### NUCLEI—Shipped by Express

NUCLEI—Our one, two or three-frame nuclei go out on full worker combs in wired frames, well supplied with bees and the proper amount of brood.

	Weight.	July to October
1-frame nucleus, no queen, .....	4- 7 lbs. ....	\$2.10
2-frame nucleus, no queen .....	9-12 lbs. ....	3.30
3-frame nucleus, no queen .....	12-16 lbs. ....	4.50
5-frame nucleus, no queen .....	22-27 lbs. ....	6.30

If queen is wanted, make a selection and add her price to the above.

#### BEEES BY THE POUND—Shipped by Express.

	Weight.	July-September
1-lb. pkg. of bees, no combs .....	3 lbs. ....	\$2.10
2-lb. pkg. of bees, no combs .....	5 lbs. ....	3.30
3-lb. pkg. of bees, no combs .....	7 lbs. ....	4.50

If queen is wanted, make a selection and add her price to the above.

## THE A. I. ROOT COMPANY

MEDINA, OHIO, U. S. A.